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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.: **10/682,058**
Applicant: **William Clay Ratliff, et al.**
Filed: **10/09/2003**
TC/A.U.: **3671**
Examiner:
Docket No.: **6697.37002**
Customer No.: **21,000**
Title: **AIRPORT BRIDGE AND LIFT**

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being:

deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commission for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at (703) 872.9306, _____ pages.

April 8, 2004

Date

Signature

Paula Gillen

Type or printed name of person signing certificate.

Mail Stop Petition
Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**PETITION TO MAKE SPECIAL BECAUSE OF ACTUAL INFRINGEMENT
(37 C.F.R. §1.102 AND M.P.E.P. §708.02)**

Applicant hereby petitions to make this application special because of actual infringement.

I, L. Bruce Terry, am the attorney for the applicant in this case and make the following allegations:

(A) That there is an infringing device or product actually on the market or method in use;

(B) That a rigid comparison of the alleged infringing device, product, or method with the claims of the application, as amended, has been made, and that, in my opinion, some of the claims are unquestionably infringed; and

(C) That I have caused to be made a careful and thorough search of the prior art by the filing of a parent patent application, now issued as U.S. Pat. No. 6,658,685, which included a careful and thorough search of the prior art by the patent Examiner, and by conducting additional prior art searching and inventor interviews, which have produced additional prior art enclosed herewith.

All such prior art has been made available to the Examiner in a previously filed Information Disclosure Statement, or is being made available in a supplemental Information Disclosure Statement filed herewith. It is believed that, under the new rules of practice, copies of U.S. Patent references need not be provided. If copies are needed, please contact the undersigned and copies will be provided.

The fee under 37 C.F.R. §1.17(h) is to be paid by the attached check for \$130. If an additional fee is required, the Commissioner is hereby authorized to charge additional fees which may be required for this petition, or credit any over payment, to Deposit Account Number 23-2770.

Respectfully submitted,



L. Bruce Terry, Reg. No. 38,336
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Attorney For Applicant



Previously submitted in parent application Serial #10/192,450
now U.S. Patent No. US 6,658,685 B1; Issued Dec. 9, 2003.

PTO/SB/08A (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449A/PTO		Complete If Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>		Application Number	
		Filing Date	
		First Named Inventor	William C. Ratliff
		Art Unit	
		Examiner Name	
Sheet	1	of	1
		Attorney Docket Number	6697.37002

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number- Kind Code ² (If known)			
	us- 2700169		01/25/1955	H.M. Henion	
	us- 3099847		08/06/1963	C.I. Iadicic, et al.	
	us- 3377638		04/16/1968	A.G. Saipos	
	us- 3581331		06/01/1971	P.N. Fisher, et al.	
	us- Des 383216		09/02/1997	N.E. Anderberg	
	us- Des 386263		11/11/1997	N.E. Anderberg	
	us- 4161049		07/17/1979	R.L. Saunders, et al.	
	us- 4559660		12/24/1985	R.D. Lichti)	
	us- 5267368		12/07/1993	R.L. Saunders	
	us- 5704086		01/06/1998	C.M. Hansen, et al.	
	us- 5761757		06/09/1998	G.R. Mitchell, et al	
	us- 5791003		08/11/1998	R.K. Streeter, et al.	
	us- 5855035		01/05/1999	R.K. Streeter, et al.	
	us- 5950266		09/14/1999	R.K. Streeter, et al.	
	us- 6122789		09/26/2000	J. Stephenson, et al.	
	us- 6212724		04/10/2001	Y. Zhou	
	us-				

FOREIGN PATENT DOCUMENTS

Examiner Signature		Date Considered	
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¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a checkmark here if English language Translation is attached.

English language translation is attached.

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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet

1

of

2

Complete if Known

Application Number	10/682,058
Filing Date	10/09/03
First Named Inventor	William Clay Ratliff
Art Unit	3671
Examiner Name	

Attorney Docket Number 6697.37002

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
		US- 6,390,757 B2	05/21/2002	Ganiere, Jeff	
		US- 2003/0178259 A1	09/25/2003	Henderson, R.P	
		US- 2003/0219329 A1	11/27/2003	Ganiere, Jeff	
		US- 2003/0229955 A1	12/18/2003	Savage, John	
..		US- 6,676,359 B2	01/13/2004	Ganiere, Jeff	
		US- 2003/0217891 A1	11/27/2003	Ganiere, Jeff	
US-					

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)				

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PTO/SB/08B (08-03)

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Substitute for form 1449/PTO				Complete if Known	
				Application Number	10/682,058
				Filing Date	10/09/03
				First Named Inventor	William Clay Ratliff
				Art Unit	3671
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	6697.37002

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
		THOMAS TELFORD HOUSE, Custom-made solutions with inbuilt flexibility for the industry. 10/24/2000; Sec. No. 8, Vol. 33; Pg. 15; 0002-2853; Thomas Telford Ltd, U.K.	
		SHERILEE CLINCH, Atlanta stresses its social side. 10/10/2000; Sec. No. 7, Vol. 33; Pg. 18; 0002-2853; Thomas Telford Ltd, U.K.	
		JACKIE POTBIER, A bridge further. 2000. Passenger Terminal 2000; Pgs. 142-144; DEW Engineering,	
		JACKIE POTBIER, Mind the gap. 2001, Passenger Terminal 2001; Pgs. 157-159; DEW Engineering	
		DEW-VALET Baggage System; 10/15/1999; Pgs. 1-25; DEW-BRIDGE	
		Nova BridgeLift; Airport Automation Corp. website; http://www.airportautomation.com/intro.html ; no date	

Examiner Signature		Date Considered	
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1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.
This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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1 of 7 DOCUMENTS

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Airports International

October 1, 2000

SECTION: No. 8, Vol. 33; Pg. 15 ; 0002-2853

IAC-ACC-NO: 66305247

LENGTH: 477 words

HEADLINE: Custom-made solutions with inbuilt flexibility for the industry.

AUTHOR-ABSTRACT:

THIS IS THE FULL TEXT: COPYRIGHT 2000 Thomas Telford Ltd. Subscription: 40.00 British pounds per year.
Published monthly. Thomas Telford House, 1 Heron Quay, London E14 4JD., United Kingdom

BODY:

Recognising that commuter type aircraft had special design requirements, Canada-based **DEW Engineering** developed the **DEW-Bridge**, a product that is versatile enough to service a wide range of aircraft, including the Dash-8, ATR and CRJ, as well as other regionals and narrow-body aircraft. The **DEW-Bridge** provides flexibility to airports and airlines with its unique pedestal system. This particular system does not require the traditional, expensive pit foundations and allows for easier bridge relocation if necessary. Both ground and second level installations are possible with the **DEW-Bridge** rotunda configuration. Interestingly, the cab platform can accommodate aircraft with non-collapsible handrails. The **DEW-Bridge** can also be fitted with 400Hz, 28V and preconditioned air units.

In addition, the enterprise has developed a shorter model of the already existing radial drive **DEW-Bridge** to accommodate limited space concourses currently being built at airports in North America. While working on various projects, it became evident to **DEW Engineering** that flexibility in bridge length is desirable.

Modifications were made to the boarding bridge to give airlines and airports the versatility they require. Northwest Airlines will have received nine of these **DEW-Bridges** for Memphis International Airport by the end August 2000 for use with its CRJ fleet and twenty-five for Detroit Midfield (by the end of August 2001) for use with the Saab and CRJ aircraft.

The original **DEW-Valet baggage** system bridge mount unit can be mounted on a boarding bridge. **DEW Engineering** has expanded this product line to include apron mounted and free-standing **baggage** units to provide clients with a greater degree of flexibility. The apron mounted unit allows airports with ground loading boarding bridges to provide a plane-side **baggage** check. The free-standing **DEW-Valet** was designed for use on the terminal building but does not require support from it.

New contract work includes the Springfield Branson Regional airport, which recently placed an order with **DEW** for two boarding bridges. These **DEW-Bridges** will service aircraft such as the ATR, CRJ, Embraer, SAAB 340, DC-9 and the 737. The airport also chose the apron mounted **DEW-Valet baggage** system to provide passengers with the luxury of a plane-side luggage check as well as bridge access to the aircraft. The bridges are due to be installed in the autumn of 2000.

Airports International October 1, 2000

Burlington International airport will also receive two DEWB-ridges later this year. One of the gates will service the Airbus 320 and the second gate will service Embraer regional jets as well as Canadair regional jets.

Elko Regional airport placed an order for one ground level DEW-Bridge to service the 737, Embraer 120 and the Canadair regional jet. This airport should take delivery of the DEW-Bridge early in 2001.

IAC-CREATE-DATE: October 24, 2000

LOAD-DATE: October 25, 2000

2 of 7 DOCUMENTS

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Airports International

September 1, 2000

SECTION: No. 7, Vol. 33; Pg. 18 ; 0002-2853

IAC-ACC-NO: 65804505

LENGTH: 3075 words

HEADLINE: Atlanta stresses its social side.

BYLINE: Clinch, Sherilee

AUTHOR-ABSTRACT:

THIS IS THE FULL TEXT: COPYRIGHT 2000 Thomas Telford Ltd. Subscription: 40.00 British pounds per year.
Published monthly. Thomas Telford House, 1 Heron Quay, London E14 4JD., United Kingdom

BODY:

Inter Airport Atlanta 2000, taking place from 19-21 September at the Georgia International Convention Center, is seeking to jazz up its image with a host of social events and parties, reports Sherilee Clinch.

As the Inter Airport Atlanta Show draws nearer, Mack Brooks, organiser of the world's "premier airport exhibition", promises its visitors that the show will be even more entertaining and glitzy than its last fair held in 1998.

Making a shotgun start to the Inter Airport Show this year is the first ever golf tournament taking place on Monday 18 September at one of Georgia's finest golf courses, The Georgian Resort.

The tournament will commence at 9am and players can enter as many people as they choose for their team.

This is sure to be a great way to entertain the most important clients the day before the show starts, plus players will be back in time for the PreShow Party in the early evening.

The Pre-Show Party in the exhibition hall begins at 6pm and gives exhibitors the chance to check out the facility and meet up with friends and prospective customers.

But if you can't make this, then be sure to attend the BBQ at the end of the first hectic day of the show, beginning at 3.30pm in the perimeter of the Outdoor Exhibition Area. This will give both visitors and exhibitors a chance to mingle over some tasty ribs and a couple of beers.

Mack Brooks will also host a series of three Breakfast Meetings tackling issues on airport, airline and military buying respectively.

The aim of these meetings is to allow exhibitors to hear and join in on questions and answer sessions with noted industry names in a relaxed breakfast environment. Speakers include companies such as American Airlines, Delta Airlines, Detroit Metropolitan Wayne County Airport and many more.

Mack Brooks has also booked tickets for the Atlanta Braves vs the New York Mets game at Turner Field on the evening of Wednesday 20 September.

Tickets are offered with a pre-game BBQ just by the seats or 'just tickets' which are available with transport to and from the inter airport show site.

Throughout the entire show, conferences and workshops will be taking place. The first conference will be on the popular subject of Airport Automation, concentrating on issues like automating passenger and baggage facilitation, and automating ramp activities. Other conferences include airport development in both North and Latin America.

The workshop 'Towards Safer Ground Handling' will be held on the opening day and will examine safety standards in all aspects of ground handling, whether these standards are stringent enough, and how to ensure these standards are met globally. Other workshops include 'making air travel more user friendly for passengers with special needs' and 'handling hazardous materials'.

Inter Roller STAND 430

Inter-Roller Engineering Limited will present its **Baggage Handling and Inflight Catering Centres Handling** solutions at the show:

Inter-Roller will showcase a special Transfer Bag Facility (TBF) it has designed and built to handle transfer baggage. The TBF is installed at Singapore Changi Airport Terminal 2.

Designed to meet the special needs of major airport hubs, the TBF uses two IR800 Racetrack Sorters for sortation. Each feeding line to the sorters is equipped with 360[MATHEMATICAL EXPRESSION NOT REPRODUCIBLE IN ASCII] -Front-and-Back scanner arrays. Sophisticated baggage tracking technology is used to track and sort bags to their correct destinations.

Inter-Roller will also exhibit an Early Bag Storage System (EBSS) using vertical carousels. This EBSS is operational at Singapore Changi Airport.

The EBSS is an integrated solution comprising baggage delivery conveyors, vertical carousels and an intelligent Inventory Management System (IMS). Thirty-one vertical carousels provide storage space for up to 2200 bags.

Linked to the **Baggage Handling System** host computer, the IMS automatically releases bags from the vertical carousels based on their flight departure times. The vertical carousel solution for storing early bags is ideal for existing terminals with limited space.

* Inter-Roller successfully installed and commissioned a new US\$ 23 million **Baggage Handling System** at Singapore Changi Airport Terminal 2 this year.

The new system is a highly sophisticated, fully automatic system. It integrates many technologies such as an intelligent and fully-redundant high-level control system, PLC conveyor control system using precision window tracking technology, tilt-tray sorters, unique application of racetrack sorters and vertical sort conveyors, and an innovative Early Bag Storage System using vertical carousels - a world's first.

* Inter-Roller also successfully completed a US\$ 3.4 million **Baggage Handling System** project at Bali International Airport this year.

Bali International Airport is undergoing a major expansion programme with a new terminal building, extended taxiway, new cargo terminals and the upgrading of existing facilities.

* Inter-Roller will be handing over two new **Baggage Handling Systems** at the Huanghua International Airport in Changsha, and the Xiaoshan International Airport in Hangzhou later this year.

* Inter-Roller is the leading supplier of **Baggage Handling Systems** to the China market with five projects, by far the highest number amongst the major international **Baggage Handling System** suppliers in the world today.

* Inter-Roller is building a US\$ 9.5 million material handling systems for Singapore Airlines' new **Inflight Catering Centre**.

Thyssen Stearns STAND 1410

Thyssen companies have been designing and producing airbridges for over 30 years, producing some 1,200 in total. And this year there have been further exciting new projects for Thyssen Stearns. More than 40 apron drive bridges have been awarded for the Chicago Midway Airport and new orders placed for Minneapolis, Buffalo, Knoxville,

Harrisburg and Toronto-Canada. A contract with US Airways will see over 20 bridges supplied for multiple US locations.

Seven Crystal glass-walled boarding bridges are now in operation at new gates at the Vancouver International Airport in Canada, making Thyssen particularly proud to bring the first glass bridges to North America.

Thyssen Dual Bridges, designed for the dual purpose of serving regional jets and as narrow-bodied aircraft bridges, have been purchased by American Airlines/American Eagle and are in operation in Northwest Arkansas, Cleveland, OH, Hartford, CT, and Nassau, Bahamas. More are scheduled for delivery this year to the McGhee Tyson Airport in Knoxville. A variation is the turbo-prop, innovative Low-Rider Dual-Bridge, a telescoping, apron-drive bridge with a similar operating range as the standard version, but designed specifically for ground floor operation.

Thyssen smooth-sided, galvanized steel passenger boarding bridges are outstanding for their efficiency as they combine the maximum levels of quality with very low cost of ownership. Turnkey solutions include 400hz, PCA, potable water and DGS options.

ABB Airport Technologies STAND 840

Managing Director, Dr Axel Stepken will be among the range of executives the company will have attending the Atlanta show where a new **baggage** handling solution will be highlighted. This has been developed to provide a tremendous increase in the automation of the **baggage** handling process.

The major subsystems of the system are the analyser, a comprehensive system for recognition and analysis, the load manager, a software system to optimise the loading sequence and scheme, and the bag handler- an integrated solution of robotic manipulators and tools for the physical transfer of bags from the point of hand-over to the loading location.

ABB's Airport Surface Movement Enhancement System (ASMOS) has been developed to control and manage ground traffic. Its design principles and state-of-the-art techniques have been implemented to be in line with the emerging standards for Advanced Surface Movement Guidance and Control Systems (A-SMGCS) according to ICAO.

Other systems to be featured include a Control System for Airfield Lighting (COSAL) developed according to relevant international regulations and a Supply Circuit Remote Operator and Load Locator (SCROLL) selective switching and lamp failure detection. The two systems are used for centre-line and stop-bar control according to the requirements of Surface Movement Guidance and Control Systems (SMGCS).

Dew Engineering STAND 914

The Dew-Bridge is a passenger boarding bridge versatile enough to service a wide range of aircraft from the Dash-8, ATR, CRJ and other regional types to narrowbody designs. It brings flexibility to airports and airlines because of its pedestal system that does not require traditional and expensive pit foundations - and allows for easier bridge relocation, if necessary.

Both ground- and second-level installations are possible with the bridge's rotunda configuration. The cab platform can accommodate aircraft with noncollapsible handrails and the bridge can be fitted with 400Hz, 28V and preconditioned air units.

The company has also developed a shorter model of its radial drive bridge to accommodate the concourses with limited space that are being built at airports in North America. Northwest Airlines will have received nine of these Dew-Bridges for Memphis International Airport by the end August for use with it's CRJ and 25 units for Detroit Midfield by the end of August 2001 for use with the Saab and CRJ.

The original Dew-Valet **baggage** system's bridge mount unit can be mounted on a boarding bridge. The product line has now been expanded to include apron-mounted and free-standing units to provide clients with greater flexibility. The apron-mounted version allows airports with ground-loading boarding bridges to provide plane side **baggage** check.

The free standing Dew-Valet was designed for use on the terminal building but does not require support from it. More product innovations will be announced very shortly.

Douglas Equipment STAND 0A324

In addition to highlighting the Tugmaster range of **baggage**, freight and aircraft towing tractors, Douglas Equipment Limited is showing model TBL-280 from its Douglas-Kalmar range of towbarless tractors.

From the 4-tonne DC4 Tugmaster through to the 70-tonne DC12-44 Tugmaster, Douglas offers a range of conventional, purpose-built tractors to meet every operational need, backed by a worldwide after-sales service. Included in the product portfolio is the Mu-Meter runway friction measuring equipment that has become an industry standard.

Douglas has also become one of the world's leading suppliers of towbarless aircraft handling tractors, having now sold over 330 units to customers worldwide. Similarly priced to conventional aircraft towing tractors, this Douglas-Kalmar range includes five models.

The TBL-180 and TBL-190 Tugmasters are designed for pushback, inter-gate and slower speed/shorter distance maintenance towing operations for aircraft weighing up to 180 tonnes and 280 tonnes, respectively. The TBL-200, TBL-280 and TBL-400 models are intended for pushback, inter-gate and higher speed/longer distance maintenance towing operations with aircraft ranging from the DC9/B737 up to the B747400.

Recent customers include Air Canada, Continental Airlines, Abu Dhabi Airport Services, Gapura -- Indonesia, Alitalia, Singapore Airlines and SEAP -- Italy.

PF Fishpole Hoists STAND 1504

PF Fishpole Hoists Inc., the world's leading manufacturer of single attachpoint aircraft maintenance hoists, is exhibiting the company's complete product line at Inter Airport, including the newly-introduced PF51-101 Airbus Auxiliary Power Unit Hoist System.

PF hoists are precision maintenance tools, designed in co-operation with leading aircraft manufacturers, to perform the rapid installation and removal of aircraft components via the "bootstrap method". The company has 30 years of experience in the design, manufacture and distribution of aircraft maintenance equipment and its value-engineered products are utilised by maintenance personnel around the world.

Harlan Corporation STAND 810

Harlan will be presenting its new electric Towing tractor, a vehicle currently being tested to rave reviews by various airlines. In essence, the tractors have been designed by Harlan's customers -- making them comfortable for the driver, having exceptional quality, providing easy maintenance access and, what is termed as, economy pricing.

The tractors are different from most on the market today as they run on an AC battery motor, which allows for longer power times between charges. They are currently built with a 5,000lb drawbar pull, making them suitable for pulling cargo or baggage, as well as small aircraft.

The other vehicle Harlan will be displaying is its standard gas tractor, fitted with the new Ford EFI 4.2L V-6 engine, which has superceded the Ford 300 series.

Harlan is promising a few surprises for visitors to booth 810 in addition to details on designing tractors with softer suspension or the benefits of using the Pro-E solid modelling computer software for fit and analysis. Get along and check it out. Or pay an early visit via the company's website at www.harlan-corp.com.

FMC seekson the ramp

FMC Airport Products and Systems Division has entered into a technology alliance with WhereNet Corporation to provide wireless, real-time systems for locating and tracking ground support equipment on the move throughout airport facilities.

Under the agreement, FMC is an authorized distributor of WhereNet Real Time Locating Systems for airport applications, and the two companies will partner to develop additional equipment for locating and tracking applications focused on airport operations.

"This is a significant advancement that will, for the first time, give operators of ground support equipment immediate and highly accurate information on where their equipment is presently deployed -- across ramps, in hangars, or at any other site," explained Dan Pohly, FMC's Airport Systems Business Manager. "Soon, it will also provide status information about the equipment. Obviously, these kinds of data can greatly enhance efficiency in managing and utilizing ground support resources."

Using technology already proven in both military and civilian applications, the WhereNet system uses small, battery-powered, wireless tags attached to equipment. Each tag identifies itself, via spread-spectrum radio frequency transmissions, to fixed position receivers. The receiver network uses patented algorithms to determine locations of the

tags within an accuracy of 10 feet (3 meters), and a seamless connection, in turn, produces PC screen displays that show where every piece of equipment currently is. This information is available both locally and over the Internet.

Near-term plans call for development and addition of wireless telemetry to provide information about equipment status, such as whether the engine is on or off, mode of operation, operating hours, any faults that exist and how much fuel remains in the tank.

"These capabilities will be a great complement to our current wired Airport Management Systems," commented Pohly. "Together they will allow for complete monitoring of both fixed and mobile ground support equipment, enabling our customers to improve overall operational co-ordination and efficiency while optimizing return on their equipment investment."

GATE German Airport Technology & Equipment STAND 1724

The German association for the airport and airline-related industry is again in attendance at Atlanta with information on its member companies, displayed on a common stand. The organisation is being represented by its president, Dieter Heinz. The stand display will focus on the association's Internet pages, which has links to all products and services of member companies. The address is www.gate-online.org.

BAE Automated Systems STAND 440

BAE will demonstrate its radio frequency identification (RFID) **baggage** tagging alternative to bar-coded tags. This method is based on chip-less technology which, when used in bag tags, has the potential to sort at a rate of 99%.

Implementation of the radio frequency tag allows the airline and airport authorities to sort and track **baggage** from the ticket counter to the aircraft, and from the aircraft to the reclaim area, virtually identifying the whereabouts of the bag from check-in to **baggage** claim. Chip-less tags are disposable and can be produced at a low cost, currently costing 25 cents - less than half the cost of chip technology tags.

Chip-less technology can be easily integrated into existing **baggage** handling systems that use a bar-code tag. This creates a dual-technology system, allowing the bar-code knowhow to be phased out over time.

Another major focus at the show will be the MagnaSort, a new branding technology designed to produce performance-matched **baggage** system components encompassing all the products necessary for a fully functional **baggage** conveyor system.

The product line is organized into six different application series.

CDG Cargo Systems Ltd

CDG Cargo Systems Ltd. will be previewing the full range of lifting and lowering equipment currently being supplied for Air Canada's new cargo handling warehouse at Toronto Airport, at this year's Inter Airport Atlanta.

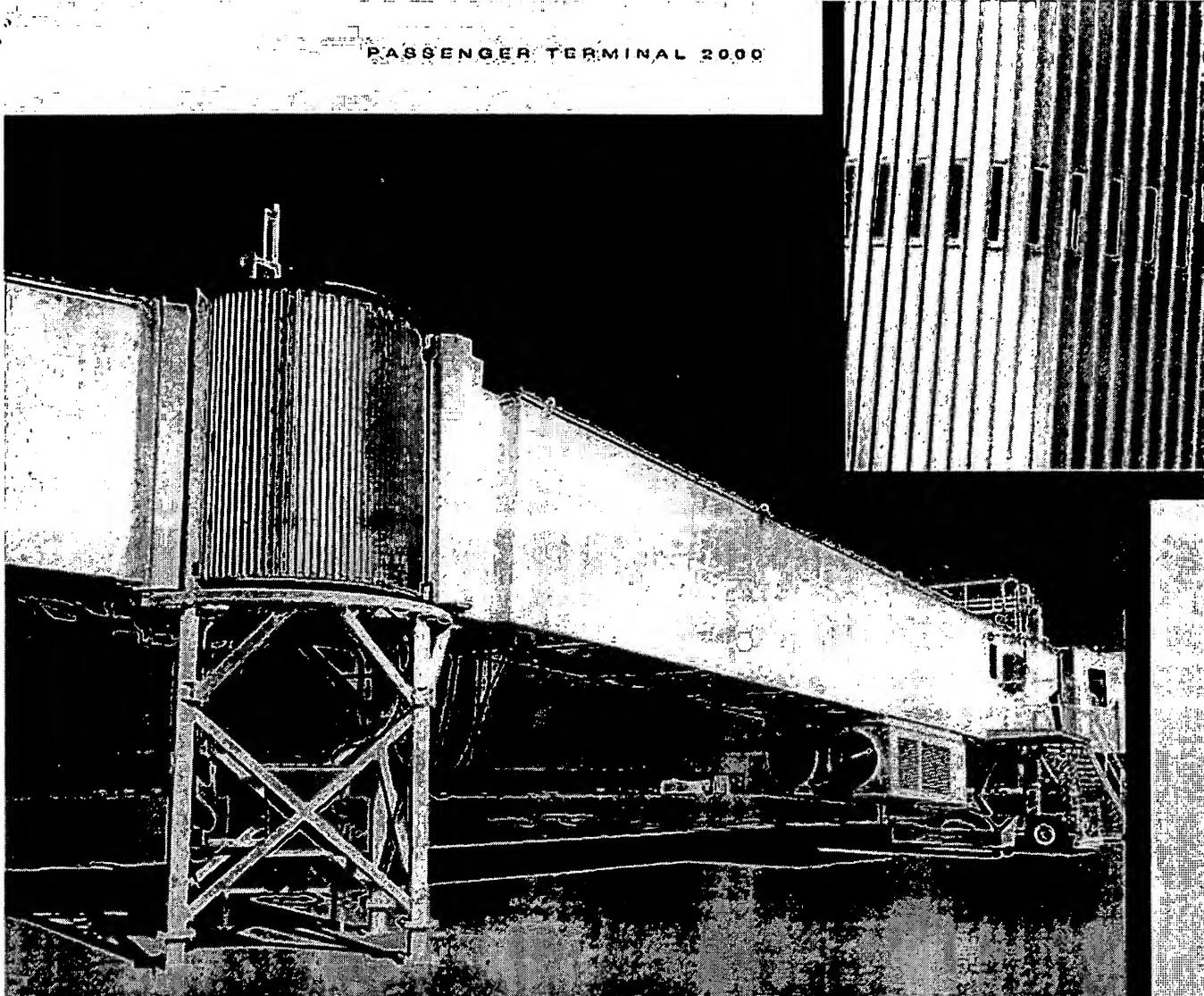
The cargo handling equipment specialists, which is part of the growing international Logan Fabricom Airports Group, recently won a US\$ 5 million contract to supply Air Canada's Cargo Handling warehouse at Toronto's Lester B. Pearson International Airport with ETV's, ATV's Truckdocks and "Driveover" Lowering workstations, as part of the Murata/Katlyn/CDG consortium.

CDG has been assembling equipment for Canada since June. First deliveries will go on-site at Lester B Person in October with the air cargo terminal becoming fully operational by summer next year.

Ron Dyson, Director and General Manager of CDG, who will be attending the show, commented: "We are delighted to be involved in the new Toronto warehouse, having already supplied similar equipment to Air Canada for London Heathrow, Los Angeles, Chicago, Vancouver and Montreal. In fact, we have been supplying Air Canada for over 30 years."

IAC-CREATE-DATE: October 9, 2000

LOAD-DATE: October 10, 2000



A bridge further

In the past year, debate about bridging regional and commuter aircraft has become common. Although these aircraft have been around for some time, bridging them is very new to the industry. Eighteen months ago, when DEW Engineering began marketing the DEW-Bridge (as the first full-service passenger boarding bridge for regional aircraft), most airlines and airports did not take the new innovation seriously, as they did not see a place for it within the system. However, since then attitudes have changed substantially, and airports, airlines and their consultants are now looking to work with bridge manufacturers to ensure that their new expansions and concourses can use these products effectively.

This cooperation between customer, consultant and manufacturer is something

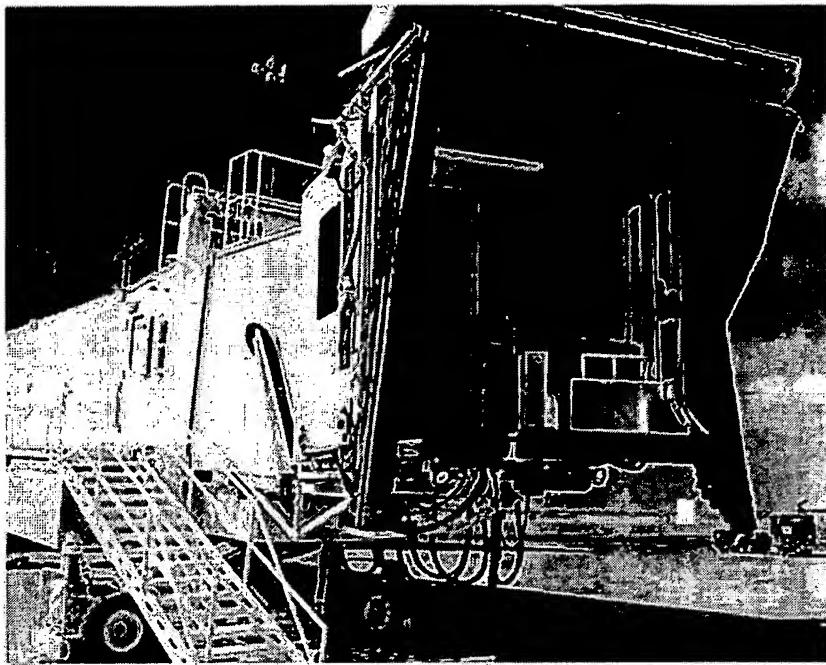
Airports and airlines are realizing the benefits of using passenger loading bridges for commuter, regional and narrow-body aircraft. However, early consultation with the manufacturer is essential to ensure that the bridge meets the requirements of the terminal

■ Jackie Potbier, DEW Engineering, Canada

that, though always beneficial, is rarely done. It does require time and effort on all parties, but usually results in a plan that has addressed equipment issues that will effect the building design. Having a manufacturer tell a client that the equipment is incapable of meeting their requirements due to the specific terminal design can

cause a few headaches once the concrete has been poured.

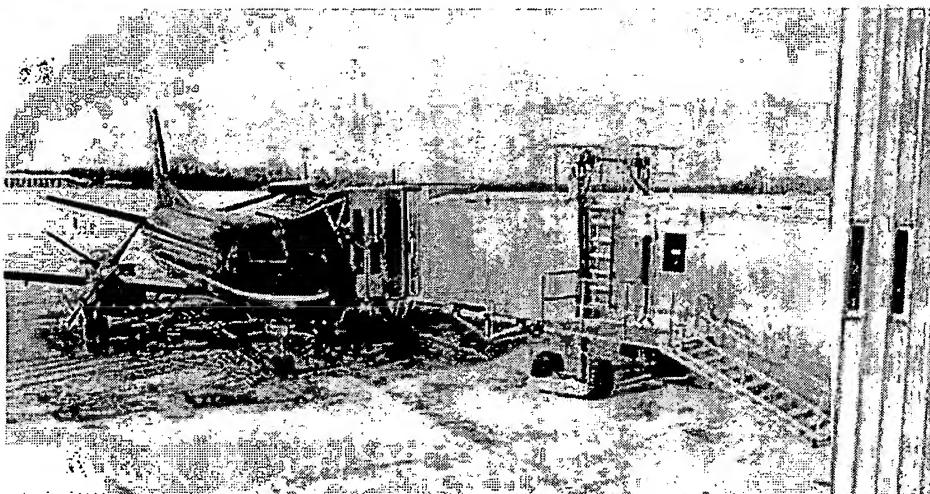
In this vein, DEW Engineering worked with Northwest Airlines in the development of the west concourse that will be part of the new multibillion dollar expansion at Detroit Metro Wayne County Airport. This commuter concourse will



house 25 DEW-Bridges for CRJs and Saab 340s. From the very concept, Northwest Airlines, in an effort to distinguish itself from other airlines in offering superior customer service, sought information on regional bridges that would give it the ability to move forward with a flexible and effective commuter concourse. The same effort is being made with bridge manufacturers for its new Minneapolis-St. Paul commuter concourse.

Bridging regional aircraft involves a number of technical issues. Direct interface with the customer and their consultants early in the concourse planning stage is important. Such interaction will provide input into the design that can solve ADA (Americans with Disabilities Act) slope problems, plane-side baggage retrieval issues and aircraft/ground equipment interface. Without this pre-planning, a concourse could be designed that leaves passengers having to use stairs at each gate – a totally undesirable result.

The primary issue to be resolved with the airport is the terminal floor height. When creating a regional concourse, the first consideration is whether to have ground floor or second floor hold rooms. The answer in many cases is neither. Most of these concourses are being developed to handle Saab 340s, and CRJ and EMJ regional jets, which have very similar door sill heights. The length of a bridge is determined by several factors, such as ADA requirements, aircraft parking locations, and the required flexibility between terminal and apron. This may involve an iterative layout process between manufacturers and clients or consultants.



Most other technical issues are resolved by the regional bridge itself. Solutions to several of these issues are as follows:

- On aircraft such as the Dash 8 and Saab 340 the propeller is very close to the passenger door and must be avoided. The DEW-Bridge incorporates a radial drive system that allows motion only in an arc. The telescopic feature can be actuated separately, giving the operator more control over the positioning of the bridge. Sensors on the front wall also prevent any propeller contact;
- For aircraft that have stairs with non-collapsible hand rails, slots are added to the platform. Sensors within these slots prevent any damage to the rails;
- Ground floor holding rooms can be serviced by the different style of pedestal/rotunda system provided. Conventional passenger boarding bridge rotundas

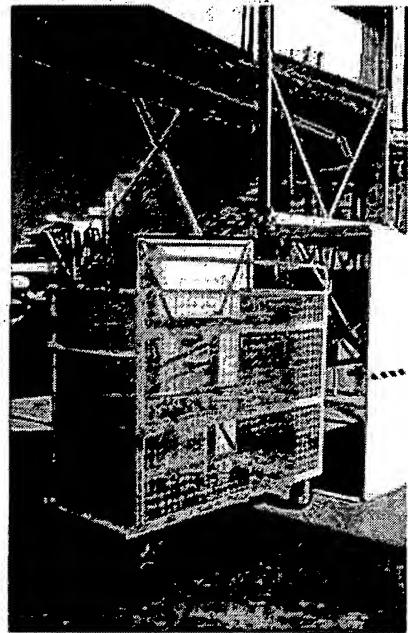
cannot have a floor height much less than 5ft. The DEW-Bridge rotunda has been designed with a minimum height of 12in from the apron. This design means that use of expensive pit foundations is not necessary;

- Second level holding rooms can also be serviced using the taller version of this pedestal system. The lower regional aircraft door sill heights are reached using a combination of rotunda pedestal height variation and additional ramping walkways. These options ensure that the 1:12 slope requirements of the ADA are met;
- The number of different aircraft serviced created a problem using the standard style canopy. These aircraft fuselage diameters dramatically varied in size, leading to sealing problems. A dual-arm system was provided that allowed control of the canopy not only in the in and out direction, but also up and down. This allows the canopy to wrap around the fuselage rather than push into it.

During the original design phase of the DEW-Bridge, it was discovered that the one convenience offered by travel by regional aircraft – plane-side baggage service – was removed by using the bridge. As overhead bin space is extremely limited on these aircraft, this service was deemed to be a necessity. DEW Engineering, again with the input of airlines and airports, developed two systems that could be used with ease.

The first system is a simple but effective solution for ground floor applications. A 12ft adaptor section is added between the rotunda and the terminal building. On one side of this adaptor is a closet-type device that can hold a baggage cart for valet service. The closet is separated from the exterior by rolling doors that can be actuated by ground crew or any other authorized personnel.

The second system, the DEW-Valet,



was developed for terminal floor heights of more than 24in. This includes a lift system that can be attached to the bridge. The baggage cart is rolled into a box that is then lifted to the level of the bridge floor. The interior doors can only be opened when the box is in the elevated position.

Both these systems allow ground crew

to provide the complete plane-side baggage service that passengers have come to expect and appreciate on smaller aircraft. If passengers can leave their bags on an actual cart, rather than leaving them on the floor inside the bridge or giving them to an attendant, they will be confident that they will be reunited with their baggage at their destination.

Technicalities aside, airlines and airports have begun to see the financial value of using bridges for regional service. The first reason is to achieve better customer service and relations: a phrase that is being used much more often in the aviation industry today. Then come passenger safety and security: with the use of a boarding bridge, liability issues are greatly reduced by keeping passengers in an enclosed and secure environment. The final benefit is barrier-free access: with an ageing population and an increasing number of passengers in wheelchairs, use of a bridge means that a mechanical lift device is not required, thereby reducing turnaround times and preserving passenger dignity.

These types of customer service and safety issues are not just concerns for the airlines, but also for the airports. More and more regional airports want to see their customers treated with dignity and

care. These airports are conscientious enough to request information from bridge manufacturers, as well as to insist that their consulting planners and architects do the same. Airports such as Rhinelander, Wisconsin; Jacksonville, Florida; and Charlottesville, Virginia, did lots of homework up front to make sure that they knew in advance what type of terminal modifications had to be made if any, and how a bridge would affect their operation.

Consultants are also becoming aware of regional bridge availability, and are beginning to see it as a means to offer their clients a new and exciting solution to old problems. Again, however, simply to know a bridge exists and not understand the parameters required in its use can lead to a non-functional regional gate plan. Consulting with a manufacturer, whether it be boarding bridges or baggage systems, is a key ingredient that can affect schedule, cost and design.

Having solved the traditional regional bridge technical problems, the DEW-Bridge continues to provide airports and airlines of all sizes with a passenger loading bridge for commuter, regional and narrow-body aircraft, thereby providing a flexible, cost-effective means to meet the challenge of changing operational requirements. ♦

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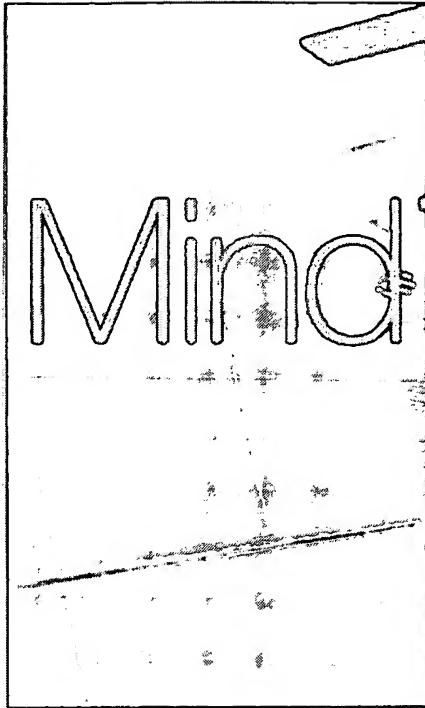
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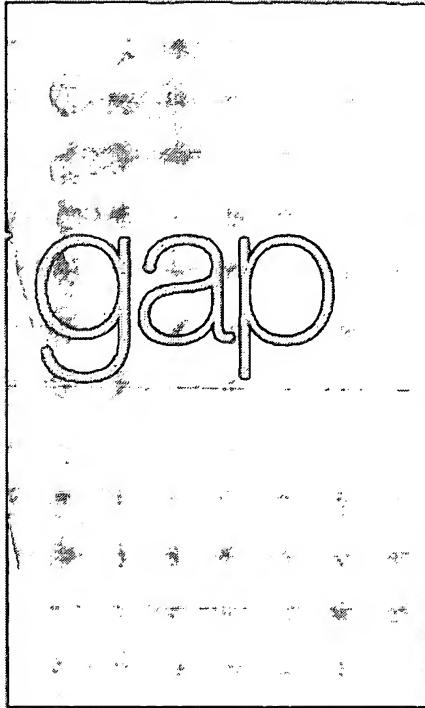


Mind the gap

the

Many factors have to be considered when designing and installing boarding bridges for regional aircraft

■ Jackie Pottier, DEW Engineering and Development Limited, USA



gap

Regional aircraft, regionals and RJs seem to be the aviation industry buzz words of our decade. When scanning media sources you can't miss the latest on recent and ever-increasing sales of regional jets by Bombardier and Embraer, and at conferences regional aircraft are the hot topic among terminal design architects and engineers. Figuring out how to accommodate the burgeoning number of these regional aircraft is on everyone's mind.

Recognizing market trends within the industry, DEW Engineering and Development Limited developed and installed a DEW-Bridge for American Eagle at the new Northwest Arkansas Regional Airport in October 1998. It was the first passenger boarding bridge commercially available on the market that was capable of servicing commuter, regional and narrow-body aircraft. Today there are over 30 DEW-Bridges in operation across North America and demand continues to push production to new levels.

The concept of providing regional jet passengers with a boarding bridge is still very new within the aviation industry. As competition for passengers increases, industry players including regional airports, larger hub airports and even the individual airlines are searching for better ways of serving customers to get that extra edge.

In the beginning

Commuter and regional aircraft have traditionally been considered an inconsequential

part of overall terminal planning – almost an afterthought. Passengers are herded to the farthest reaches of a terminal or concourse where they wait in overcrowded lounges. From there they must walk outside to the aircraft in all weathers or be taken by bus to a remote parking stand. The end result is that passengers have to face whatever environmental conditions and apron safety hazards are existing at the time of boarding. As expressed by one traveler a few months ago, the whole experience might not be far off what Steve Martin suffered through in the film *Planes, trains and automobiles*.

Unfortunately, to this point the experience of a regional jet passenger has been that of a second class citizen at best. Fortunately change is on the horizon.

Educating the professional

With the rise in popularity of the regional jet, there have been a growing number of conference sessions dedicated to the regional aircraft boom and what the effect will be on the development of airport facilities and the equipment to support it. By educating key industry players such as facility designers and airport planners on new products available in the marketplace, this information can be considered prior to critical planning decisions. Understanding the products that are available and how they work before the concrete is poured will lead to better, more informed decision making, ultimately leading to more convenience for clients and passengers alike.

In pursuit of this knowledge, consultants contact DEW for the latest details on bridges for all types of commuter, regional and narrow-body aircraft. This aircraft mix ranges from propeller commuter planes such as the Dash 8 and SAAB-340, to regional jets such as the CRJ, RJ-85 and EMJ, to the narrow-body Boeing 737, Airbus A320 and Boeing 757.

Bridging aircraft of such diversity involves addressing a number of technical issues. Direct interaction with customers and their consultants early in the concourse planning stage plays an important role in helping to avoid problems later on. This interaction will enable DEW's technical experts to provide valuable input into the facility design that can prevent American Disabilities Act (ADA) slope problems, aircraft-side baggage retrieval issues, and aircraft/ground equipment interface issues. This also results in potential cost savings for customers. Without this preplanning, the concourse may not meet the customer's needs or expectations.

Preparing for regional bridging

The process of planning your passenger boarding bridge strategy for regional aircraft is simplified dramatically when starting with a clean slate. Unfortunately this is usually not the case and client expectations may have to be adjusted, resulting in numerous compromises. Ensuring that all project participants fully understand the concept of how passenger boarding bridges serve regional aircraft is critical to success. Once the consultant understands

the concepts sufficiently to impart this knowledge to the client, the request for proposal (RFP) document should be developed to reflect, in as much detail as possible, exactly what is desired, as well as what options should be included. The more specific the information provided in the RFP, the easier it will be to evaluate proposals. In addition, providing detailed information in the RFP will result in fewer change orders to the eventual contract.

To start the regional bridging process, there are a number of key factors that need identification and clarification. They include the following:

- Terminal floor height;
- Aircraft mix;
- Apron space availability;
- Ancillary equipment;
- Options.

The first three are almost inseparable. Each one can adversely affect the other if viewed in isolation. In order to illustrate this codependence better, the following presents several scenarios with real answers.

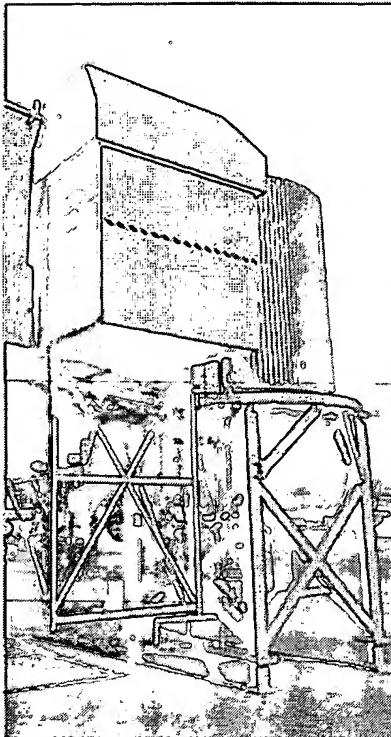
Ground floor holdroom, Dash 8 up to Boeing 737, ample apron space

This is typical of many regional airports. The exit door is usually at apron level and it will be necessary to ramp up from the door to 12in above the apron to meet the minimum rotunda floor height of the bridge. This ramp can either be part of the interior or exterior terminal design or alternatively a 12ft tunnel interface can be provided by the bridge manufacturer. Springfield-Branson Airport chose the external tunnel interface, whereas Rhinelander, Wisconsin, opted to add an extension to the terminal to house the interior ramp.

With no lack of apron space, a full-length Radial DEW-Bridge can be used. In order to service propeller aircraft, the radial bridge is a necessity as standard apron drive bridges have too many degrees of motion for safe operation with this type of aircraft. The full-length bridge will allow access to the specified range of aircraft within the required 1:12 slope as specified by the ADA.

Ground floor, Dash 8 to A320 or 757, ample apron space

This is similar to the case above, but the larger aircraft will necessitate a longer ramping tunnel between the rotunda and the terminal building due to the much higher aircraft door sill. The 757 requires, as a minimum, a 54in rotunda floor height. At this height it is recommended that the ramping be done as part of the terminal building as it will be approximately 60ft long. This internal ramping was provided as part of the airport design



for the Central Wisconsin Airport and Vermont's Burlington International Airport. The end result is a seamless transition for the customer from a ground floor facility, over a gently sloping interior ramp and then through a full length Radial DEW-Bridge to the aircraft.

Optimum floor height for regional jet concourse

As is the case with most hub airports that are creating regional concourses, available apron space is very limited. The aircraft, typically CRJs, EMJs and SAABs, have to park with their noses as close as 20ft from the terminal wall. As these aircraft have nominal doorsill heights of 60-66in, it stands to reason that this is the optimum terminal floor height as well. This was the thought process of the designers behind the newly completed Northwest Airlines Memphis regional concourse and the now under-construction Minneapolis Concourse A.

A bridge capable of fitting the bill as described above did not exist prior to the Memphis project, which was completed with nine DEW-Bridges in October 2000. DEW re-engineered its standard full-sized radial bridge to this purpose. The new design now allows the customer to choose the final desired length of the Radial DEW-Bridge from a maximum of 86ft to a minimum of 30ft in length. These dimensions are as measured from rotunda center to cab center.

Though 5ft is the 'perfect' height for such a terminal, floor heights of 2-8ft will

also provide the flexibility to fit 'short' bridges. Northwest Airlines designers had planned for the new DTW midfield terminal regional concourse to be at ground level. But after consulting with DEW Engineering they realized that if they desired short bridging they would have to raise the building floor to 2.5ft. Twenty-five 'short' Radial DEW-Bridges will be installed at this site and be operational by August 2001.

Second floor holdroom, 757, RJs and SAAB-340

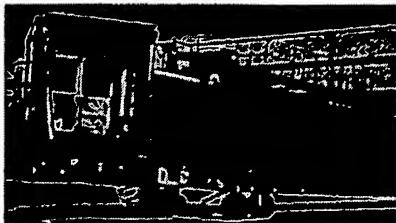
The presence of a propeller aircraft necessitates the use of a radial bridge. However as the radial bridge has a different tunnel configuration from an apron drive, the maximum height of the rotunda floor is 10ft in order to meet the 60in door of the lowest aircraft. Additional ramping walkway will be necessary if the second level is higher than 10ft. The tunnel will be approximately 1ft in length for every inch of additional height needed.

Second floor holdroom, all jet aircraft, 757 to CRJ or EMJ

With an all-jet aircraft mix, it is possible to use either the radial bridge or an apron-drive bridge. The choice between the two would be a matter of pricing (the radial being less expensive) and layout (the radial would require an additional 24ft of ramping walkway). Airports that have the apron space prefer the lower price tag and the simplified operator controls.

Terminal height is again an issue for regional aircraft in this scenario. Assuming a nominal doorsill height of just under 60in, then the maximum bridge rotunda floor height for the radial bridge would be 10ft, as described above. Such will be the installation at the Dane County Regional Airport. With the newly introduced three-tunnel Regional Apron Drive DEW-Bridge, this height can be increased to 12ft. Any floor higher than that would require additional ramping tunnel between the rotunda and the terminal building with an ADA-compliant maximum slope of 1:12.

To expand on the new product introduction, DEW is currently finalizing the design for its Regional Apron Drive DEW-Bridge. This product will combine the capability of the Radial DEW-Bridge to effectively service regional and narrow-body jets with the greater flexibility of motion of industry-standard apron-drive bridges. The Regional Apron Drive DEW-Bridge will have a telescopic ability of approximately 50ft and may be used for ground or second floor holdroom applications. Such a bridge can also access multiple aircraft per gate and, where apron space allows, gives flexibility in aircraft parking positions.



Plane-side baggage

Having dealt with the bridging aspect of regional aircraft, one detail is invariably forgotten by planners: How do you handle the plane-side baggage that is usually left by passengers at the bottom of the aircraft stairs? Airlines are insistent that this is one passenger convenience that must be retained as the overhead compartment space in smaller jets is virtually non-existent. Plane-side baggage is not checked baggage; passengers expect to see it again immediately after de-planing.

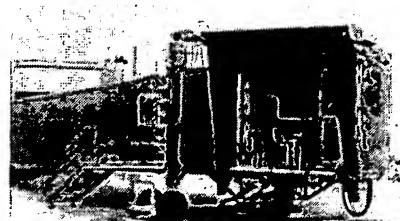
At the same time that DEW designed the first commuter bridge, it also developed the DEW-Valet baggage system. Previously only available in a bridge-mounted unit, DEW recognized the need for more flexible applications and with input from airlines and airports designed the apron-mount and free-standing units.

The original bridge-mounted DEW-Valet is a lifting device that can be flange

fitted to any boarding bridge or ramping walkway. While boarding, passengers can conveniently deposit their baggage on a cart located in a carrier box that has been lifted to bridge floor level. The box is then lowered to the apron where ground crew can roll the cart to the aircraft. The opposite occurs while de-planing. This type of system can be used in any situation, though it is recommended only where the terminal floor exceeds two feet in height.

A free-standing DEW-Valet was introduced at Memphis International Airport in October 2000. It is designed for airlines and airports that prefer not to have the valet unit interior door in the bridge or tunnel section. This system is instead anchored to the concrete apron, flashed to the terminal building, and has the interior door located in the second floor holdroom wall. The lift system concept for this unit is the same as a bridge-mounted system. The major difference is the added external structure to house the lift system. This DEW-Valet also has an optional feature to allow the baggage cart to be physically pulled into the holdroom.

The apron-mounted DEW-Valet is a simple design solution for ground-level bridge boarding and plane-side luggage service. A cabinet is attached to the interface tunnel between the terminal building



and the rotunda. Ground crew can place the baggage cart inside the cabinet and when the interior door is raised, the baggage cart is easily accessible to passengers. No lifting device is required making this unit a cost-effective solution for ground-level bridge applications. As an alternative, DEW also recommends that consideration be given to providing access to passenger baggage as part of the interior terminal design of the ground floor holdroom.

On and on

The details of planning never seem to stop. This has been only a short course in what should be considered when attempting to marry a terminal building to regional aircraft. Unfortunately each site has its own intricacies, and for this reason planners and designers should be diligent in approaching manufacturers as a sanity check at the concept phase if possible, or at the very least prior to construction. ♦

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DEW-Valet Baggage System

Originally issued October 15, 1999

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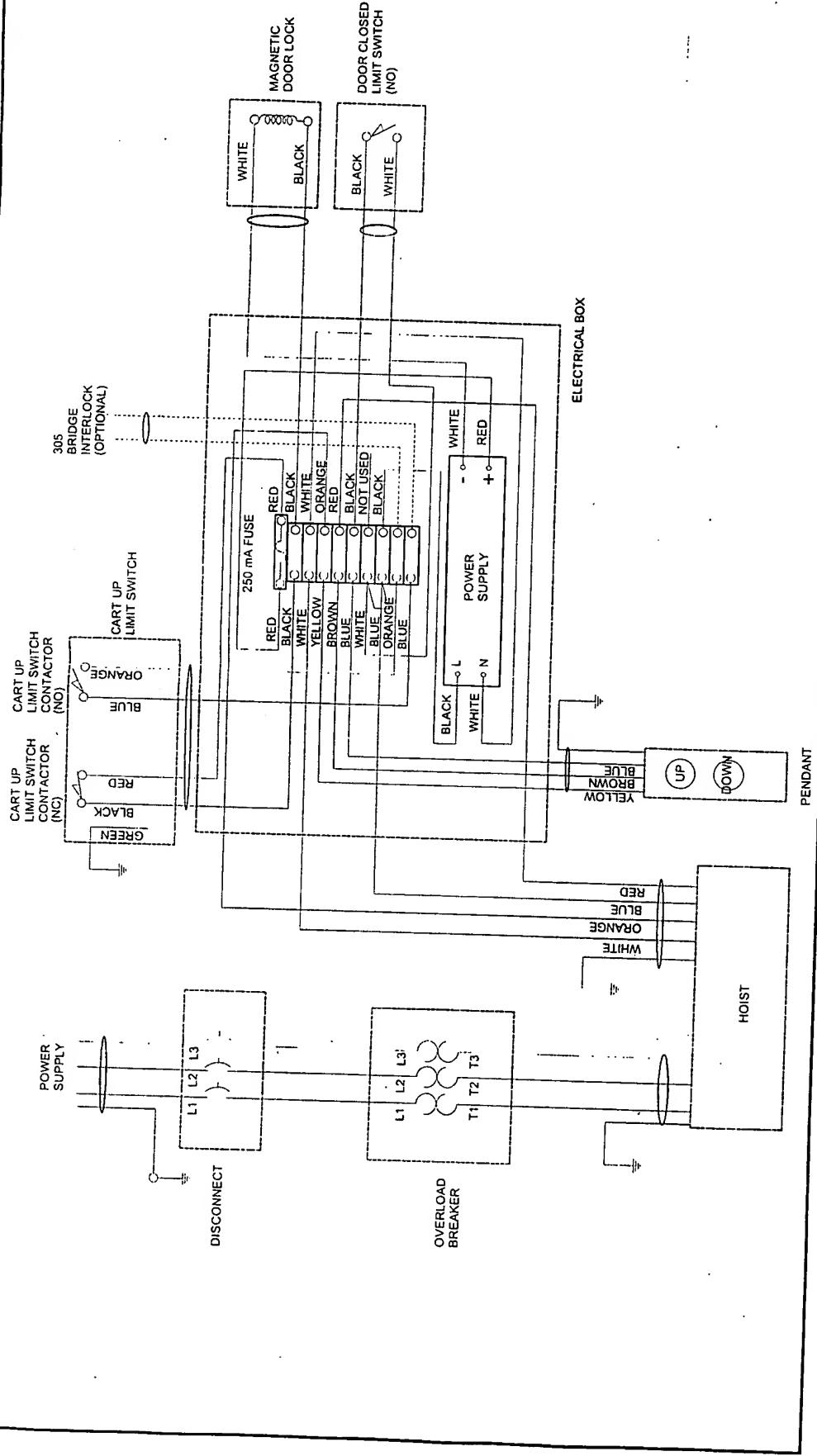
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DEW-BRIDGE


SECTION 1: GENERAL DESCRIPTION

1. Purpose of this Manual

This manual contains Operating Instructions, Maintenance and Overhaul/Major Procedures and an Illustrated Parts List for the DEW-Valet Baggage System.

The manual provides the operator and maintenance personnel with the necessary information for the operation and maintenance of the DEW-Valet Baggage System.

It is a mandatory requirement that all DEW-Bridge operators familiarize themselves with this manual, and have successfully completed a DEW-Bridge Operator training course.

2. Description of the DEW-Valet Baggage System

The DEW-Valet Baggage System is an elevating device for lifting/lowering passenger baggage between the tarmac and the inside of passenger loading bridges.

The system is comprised of a cart that is loaded in and out of the cabinet assembly. Operation of the unit is performed from a two button pendant station located outside at the base of the unit where the ground crew has full view of obstructions and dangers. Inside the bridge, access to the baggage retrieval door is available. In addition, several safety systems have been used to prevent damage to personnel and equipment.

3. Description of Major Components

A. The DEW-Valet Baggage consists of the following major components. (Ref. Fig. 1).

(1) Cabinet

The cabinet is fixed to the lifting frame, which provides cover and protects baggage from inclement weather.

(2) Lifting Frame

The lifting frame allows the baggage to be transported from the apron to the DEW-Bridge valet baggage doors and from the DEW-Bridge valet baggage doors to the apron.

(3) Guide Rail

The guide rail is fixed to the outside DEW-Bridge wall. The guide rail allows the lifting frame to travel up or down along its rails.

(4) Cover

The cover is fixed to the guide rail, which provides cover and protects the Electrical System from inclement weather.

(5) DEW-Bridge Valet Baggage Door

The DEW-Bridge valet baggage door provides access for the baggage to be transported from the DEW-Bridge to the cart in the cabinet and from the cart to the DEW-Bridge.

(6) Cart

The baggage from the DEW-Bridge is loaded to and from the cart in the cabinet.

B. Electrical System (Ref. Fig 2)

The DEW-Valet Baggage System main power circuit is 240 VAC or 480 VAC. The control Circuit for operation of the hoist and the electric magnetic door lock is 24 VDC.

(1) Hoist

The hoist runs on 240 VAC or 480 VAC and is used to raise and lower the lifting frame and cabinet.

(2) Electrical Box

The electrical box holds the main terminal block and 115 VAC/24 VDC Power Supply.

(3) Cart Up Limit Switch

The cart up limit switch is used to indicate that both the lifting frame and the cabinet are in the UP position. This switch controls the magnetic door lock.

(4) Door Closed Limit Switch

The door closed limit switch indicates that the door is closed and it is possible to lower lifting frame and cart to ground level, when the door is open, it is not possible to lower the lifting frame and cart.

(5) Magnetic Door Lock

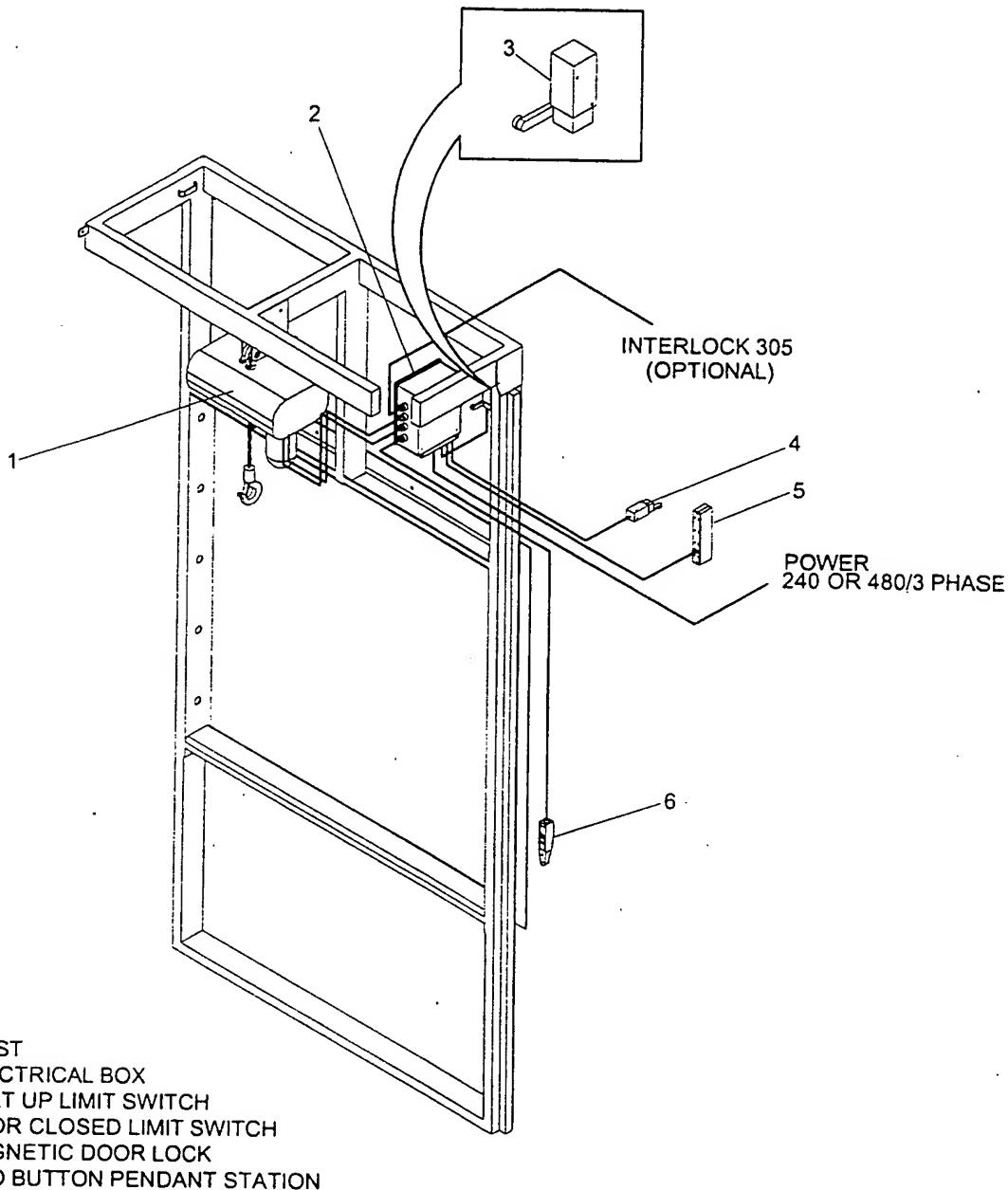
The magnetic door lock, when engaged, works in conjunction with the door closed limit switch and allows the lifting frame to travel in the UP or DOWN position, when the magnetic door lock is disengaged the lifting frame is prevented from traveling in the downward direction.

(6) Two Button Pendant Station

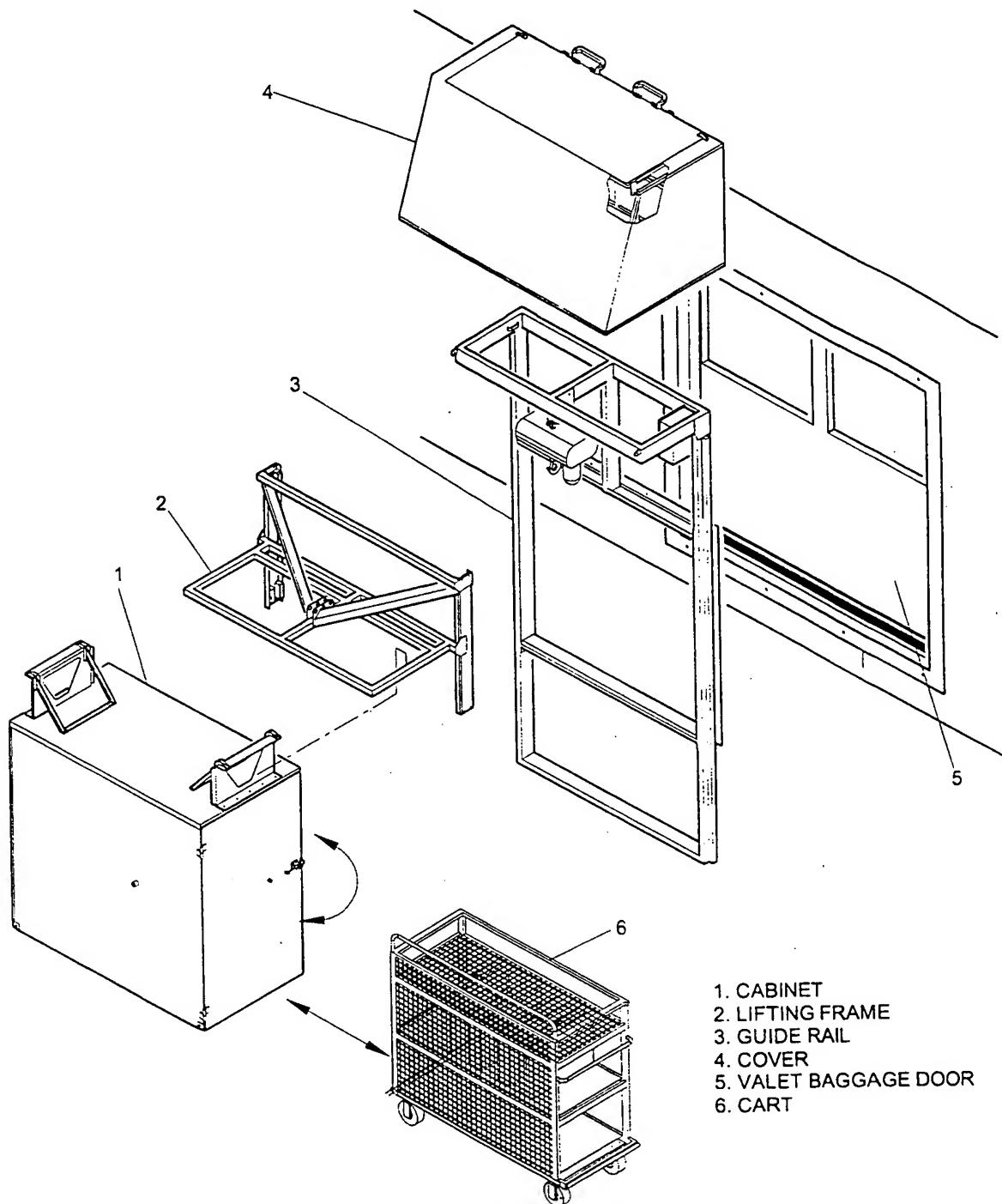
The two button pendant station is the control center for raising and lowering the cabinet and cart and is located outside at the base of the system.

(7) Bridge Interlock

The bridge interlock is used on bridges where the valet baggage is installed on a movable portion of the bridge. The purpose of the interlock is to prevent bridge motion when the cabinet and cart are not in the fully UP position.



ELECTRICAL SYSTEM (MAJOR COMPONENTS)
Figure 2 (Sheet 1 of 2)



**VALET BAGGAGE ASSEMBLY
(MAJOR COMPONENTS)**

Figure 1

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DEW-BRIDGE

SECTION 2: OPERATION

NOTE: The DEW-Bridge will fail to operate if the lifting frame is not in the UP position.

1. Departure: Loading Operator Instructions (Ref. Fig. 1 and 2)

This procedure outlines the steps the operator should follow when operating the DEW-Bridge Valet Baggage Service.

A. Ensure the valet baggage lifting frame with cabinet and cart is in the fully raised position.

B. Reach over to left hand interior walkway door and open.

C. Secure the valet baggage door into position with hook latch on right hand side of door.

CAUTION: DO NOT EXCEED 850 LBS WEIGHT CAPACITY.

D. Load baggage into cart.

E. Disengage the hook latch from latch plate and close interior walkway door.

WARNING: MOVING THE VALET BAGGAGE LIFTING FRAME WITH OR WITHOUT A CART CAN CAUSE SERIOUS INJURY. TO PREVENT ENTRAPMENT, DO NOT START VALET BAGGAGE LIFTING FRAME DOWNWARD UNLESS THE VALET BAGGAGE LIFTING FRAME IS CLEAR. ENSURE THERE IS NO OVERHANGING BAGGAGE ON THE CART.

F. Lower valet baggage lifting frame by pressing the lower push button on the two button pendant station located on the outside of the Valet Baggage Service at ground level.

WARNING: KEEP HANDS CLEAR OF RAIL WHILE VALET BAGGAGE SERVICE IS IN USE.

G. Open valet baggage cabinet door.

H. Roll the cart out of valet baggage cabinet and unload.

I. Roll the cart back into valet baggage cabinet and close door.

WARNING: ENSURE THE VALET BAGGAGE CABINET DOOR IS CLOSED AND SECURE. KEEP HANDS CLEAR OF RAIL WHILE THE VALET BAGGAGE SERVICE IS IN USE.

J. Raise the lifting frame to its stored and loading position by pressing the lift push button on the two button pendant station.

2. Arrival: Loading Operator Instructions (Ref. Fig. 1 and 2)

A. Lower the valet baggage lifting frame by pressing the lower push button on the two button pendant station.

WARNING: MOVING THE VALET BAGGAGE LIFTING FRAME WITH OR WITHOUT CABINET CAN CAUSE SERIOUS INJURY. TO PREVENT ENTRAPMENT, DO NOT START THE VALET BAGGAGE LIFTING FRAME DOWNWARD UNLESS THE VALET BAGGAGE LIFTING FRAME IS CLEAR. ENSURE THERE IS NO OVERHANGING BAGGAGE ON THE CART

- B. Open the valet baggage cabinet door.
- C. Roll the cart out of the valet baggage cabinet.
- D. Load baggage from the aircraft onto the cart and roll the cart back into the valet baggage cabinet.

WARNING: ENSURE THE VALET CABINET DOOR IS CLOSED AND SECURE. KEEP HANDS CLEAR OF THE RAIL WHILE THE VALET BAGGAGE SERVICE IS IN USE.

- E. Raise the valet baggage lifting frame into position by pressing the lift button on the two button pendant station.
- F. Reach over to the left hand interior walkway door and open.
- G. Secure the interior walkway door into position with the hook latch on right hand side of the door.
- H. Unload the baggage from the cart.
- I. Close the interior walkway door and ensure it is locked.

CHAPTER 2

SECTION 1: SERVICING

1. Introduction

The purpose of the preventive maintenance is to detect the first signs of mechanical failure and initiate corrective action before a major breakdown occurs. This section contains a Preventive Maintenance Schedule, Preventive Maintenance Procedures, and Troubleshooting Schedule.

Inspection and servicing consist of daily and periodic maintenance activities. The intervals outlined in these schedules are minimums, and are applicable when operating under normal conditions. Any faults or defects detected should be corrected as soon as possible or reported to maintenance personnel. The DEW-Valet Baggage Service MUST NOT be operated if the defect involves safety or may result in a major failure.

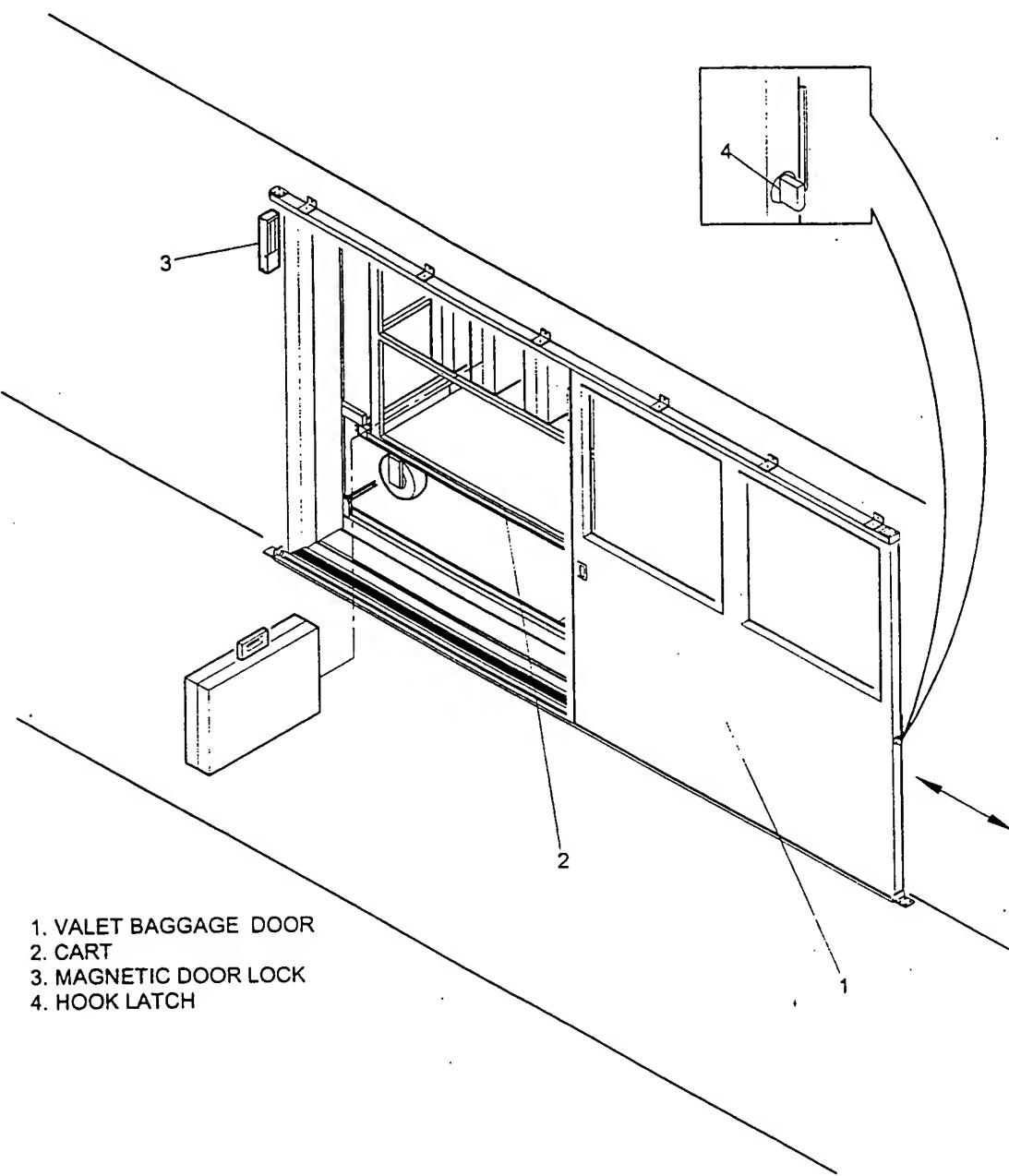
2. Preventive Maintenance Schedule

The following table outlines a recommended maintenance preventive schedule to be performed by maintenance personnel. The "frequency" column in the schedule makes use of the following letter codes:

NOTE: The first two months of operation should be checked more frequently than normal.

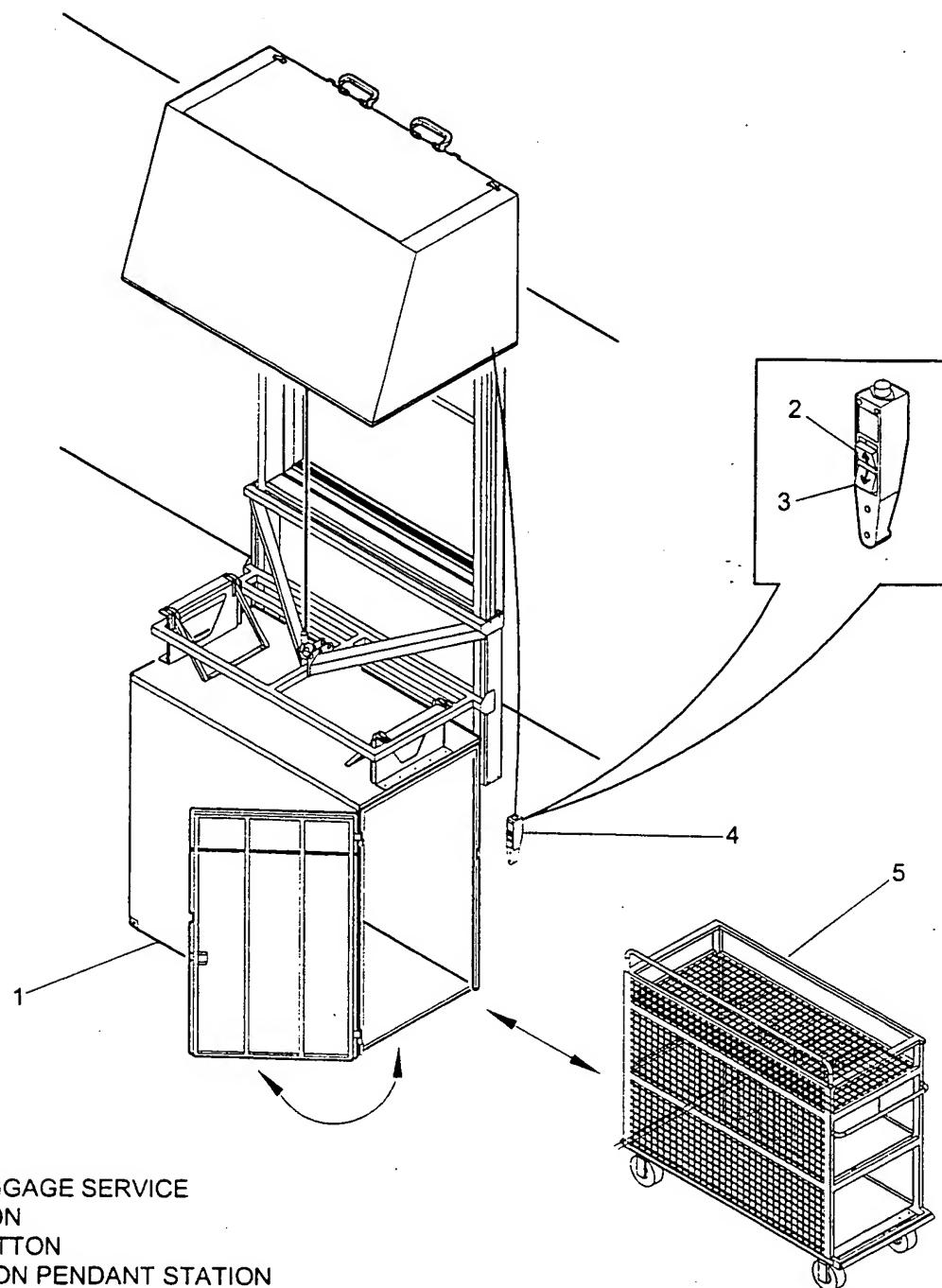
- A. D - Daily checks and services (Performed by Operator)
- B. M - Monthly checks and services
- C. Q - Quarterly checks and services
- D. Y - Yearly checks and services

Frequency	Item Checks/Services	Procedures	Corrective Action
D		Check for any abnormal sounds or smells during operation.	Report to maintenance.
D		Check the operation of the DEW-Valet Baggage Service.	Report any malfunction to maintenance.
M	General	Check for any dirt or debris that could impair the operation of the DEW-Valet Baggage Service.	Report to maintenance.
M		Check the interior and exterior for loose or missing components.	Report to maintenance.
M	Hoist	Check control functions for proper operation.	Report to maintenance.
M		Check hook for damage, cracks, twists, excessive throat opening, latch engagement and latch operation.	Report to maintenance.
M	General	Check load chain for adequate lubrication, as well as for signs of wear, damaged links or foreign matter.	Repair or replace if necessary.
M		Check chain for proper reving and twists.	Repair or replace if necessary.
M.		Inspect the electrical cords and cables and control station enclosure for damaged insulation.	Report to maintenance.
M		Inspect weather stripping.	Repair or replace if necessary
Q		Check for worn paint, rust, or water leaks.	Report to maintenance.
Q	Hoist	Refer to the installation and instruction Hoist manual provided.	



VALET BAGGAGE DOOR, OPENED (OPERATION)
Figure 1

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VALET BAGGAGE, DOWN POSITION
Figure 2

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Frequency	Item Checks/Services	Procedures	Corrective Action
Q		Check operation of all switches, lights and controls.	Repair or replace if necessary.
Every 6 months		Check external evidence of damage to hook retaining nut and pin.	Report to maintenance.
Every 6 months		Inspect lift brackets and lift bracket rubber.	Report to maintenance.
Y		Check evidence of pitting or any deterioration of contacts. Check the operation of the control station making sure the buttons operate freely and do not stick in either position.	Report to maintenance.
Y		Inspect caulking.	Repair or replace if necessary.
Y		Have hoist inspected by a qualified supplier of electric chain hoists, in accordance with applicable codes or regulations.	Repair or replace if necessary.

SECTION 2: TROUBLESHOOTING

This troubleshooting guide is to assist the maintenance personnel in determining the cause of malfunctions, and suggest the best means of remedying the problem. Since it is impossible to know all the ways that the equipment will malfunction, the troubleshooting should not be expected to show the causes of failure.

All hoists are thoroughly tested and adjusted before shipping. In most cases, a problem will arise after installation and hook-up to external devices.

If after connecting external devices to the hoist, you encounter problems, the trouble often lies in the external devices or in the wiring leading to the external devices. Verify all external wiring making certain that there are no wires pinched anywhere shorting to ground and that there are no voltages being sent into the control circuit. The hoist functions ONLY with dry contacts: the hoist transformer generates all voltages necessary for proper functioning.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
1. Hoist does not respond to the control station.	<p>A) No voltage at hoist-main line or branch circuit switch open; branch line fuse blown or circuit breaker tripped.</p> <p>B) Phase failure-open circuit, grounded or faulty connection in one line of supply system, hoist wiring, reversing contactor, motor leads or windings.</p> <p>C) Upper or lower limit switch has opened the motor circuit.</p> <p>D) Open control circuit-open or shorted winding in transformer, reversing contactor coil or speed selecting relay coil; loose connection or broken wire in circuit mechanical binding in contactor or relay; control station contacts not closing or opening.</p> <p>E) Wrong voltage or frequency.</p> <p>F) Low voltage.</p> <p>G) Brake not releasing-open or shorted coil winding; armature binding.</p> <p>H) Excessive load.</p>	<p>A) Close switch, replace fuse or reset breaker.</p> <p>B) Check for electrical continuity and repair or replace defective part.</p> <p>C) Press the "other" control and the hook should respond. Adjust limit switches as described in Hoist manual on page 17.</p> <p>D) Check electrical continuity and repair or replace defective part.</p> <p>E) Use the voltage and frequency indicated on hoist identification plate. For three-phase dual voltage unit, make sure the connections at the conversion terminal board are the proper voltage as described on page 8 in Hoist manual.</p> <p>F) Correct low voltage condition as described on page 9 in Hoist manual.</p> <p>G) Check electrical continuity and connections. Check that correct coil has been installed. The coil for three-phase dual voltage unit operates at 230 volts when the hoist is connected for either 230 volt or 460 volt operation. Check brake adjustment as described on page 17 in Hoist manual.</p> <p>H) Reduce loading to the capacity limit of hoist as indicated on the identification plate.</p>

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
2. Hook moves in the wrong direction.	A) Phase reversal.	A) Refer to installation instructions on page 8 in Hoist manual.
3. Hook lowers but will not rise.	A) Excessive load. B) Open hoisting circuit-open or shorted winding in reversing contactor coil or speed selecting relay coil; loose connection or broken wire in circuit; control station contacts not making; upper limit switch contacts open. C) Phase failure.	A) Reduce loading to the capacity limit of hoist as indicated on the identification plate. B) Check electrical continuity and repair or replace defective part. Check operation of limit switch as described on page 10 in Hoist manual. C) Check for electrical continuity and repair or replace defective part.
4. Hook raises but will not lower.	A) Open lowering circuit-open or shorted winding in reversing contactor coil or speed selecting relay coil; loose connection or broken wire in circuit; control station contacts not making; lower limit switch contacts open.	A) Check electrical continuity and repair or replace defective part. Check operation of limit switch as described on page 10 in Hoist manual.
5. Hook lowers when hoisting control is operated.	A) Phase failure.	A) Check for electrical continuity and repair or replace defective part.
6. Hook does not stop.	A) Brake slipping. B) Excessive load.	A) Check brake adjustment as described on page 17 in Hoist manual. B) Reduce loading to the capacity limit of hoist as indicated on the identification plate.
7. Hoist operates sluggishly.	A) Excessive load. B) Low voltage. C) Phase failure or unbalanced current in the phases.	A) Reduce loading to the capacity limit of hoist as indicated on the identification plate. B) Correct low voltage condition as described on page 9 in Hoist manual. C) Check for electrical continuity and repair or replace defective part.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
8. Motor overheats	D) Brake dragging. A) Excessive load. B) Low voltage. C) Extreme external heating. D) Frequent starting or reversing. E) Phase failure or unbalanced current in the phase. F) Brake dragging.	D) Check brake adjustment as described on page 17 in Hoist manual. A) Reduce loading to the capacity limit of hoist as indicated on the identification plate. B) Correct low voltage condition as described on page 9 in Hoist manual. C) Above an ambient temperature of 104 degrees F., the frequency of hoist operation must be limited to avoid overheating of motor. Special provisions should be made to ventilate the space or shield the hoist from radiation. D) Avoid excessive inching, jogging or plugging. This type of operation drastically shortens the motor and contactor life and causes excessive brake wear. E) Check for electrical continuity and repair or replace defective part. F) Check brake adjustment as described on page 17 in Hoist manual.
9. Hook fails to stop at either or both ends of travel.	A) Limit switches not opening circuits. B) Shaft not rotating. C) Traveling nuts not moving along shaft-guide plate loose; shaft or nut threads damaged.	A) Check switch connections, electrical continuity and mechanical operation. Check the adjustment as described on page 10 in Hoist manual. Check for a pinched wire. B) Check for damaged gears. C) Tighten guide plate screws. Replace damaged part.

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
10. Hook stopping point varies.	A) Limit switch not holding adjustment. B) Brake not holding.	A) Check switch connections, electrical continuity and mechanical operation. Check the switch adjustment as described on page 10 in Hoist manual. Check for a pinched wire. B) Check the brake adjustment as described on page 17 in Hoist manual.

SECTION 3: REMOVAL/INSTALLATION

This section contains the necessary information for the removal and installation of the DEW-Valet Baggage System components.

1. Hoist (Ref. Fig. 1)

A. To remove the hoist (2) from the guide rail (5) proceed as follows:

(1) Lower the lifting frame with the cabinet assembly to ground level taking the load of the hoist (2).

WARNING: ALL POWER MUST BE SHUT OFF SO THERE IS NO ACCIDENTAL MOVEMENT OF THE BRIDGE WHEN THE HOIST IS BEING REMOVED.

(2) Open the electrical box (6), mark and disconnect wires (3) and (4).

(3) Proceed to remove the hoist from the clevis pin (1) on the guide rail (5).

B. To install the hoist on the guide rail (5) proceed as follows:

(1) Install the hoist in the reverse order of the removal.

2. Slider Block (Ref. Fig. 2)

A. To remove the slider blocks (6) from the lifting frame (8) proceed as follows:

(1) Lower the lifting frame (8) with the cabinet assembly (7) to ground level taking load off the lifting frame.

WARNING: ALL POWER MUST BE SHUT OFF SO THERE IS NO ACCIDENTAL MOVEMENT OF THE BRIDGE WHEN THE HOIST IS BEING REMOVED.

(2) While supporting the retaining bracket (3), remove the cap screws (1), the washers (2), both sides at the bottom of the lifting frame (8) and remove the washer (4) and the nut (5) both sides.

(3) Remove the retaining bracket (3) and let the sliding blocks drop out.

(4) To remove the upper slider blocks at the top of the lifting frame, use the same procedure as subparagraph (2) above.

B. To install the slider blocks (6), proceed as follows:

(1) Install the slider blocks in the reverse of the removal.

3. Cabinet Wheel (Ref. Fig. 3)

A. To remove the wheel (4) from the cabinet (5) proceed as follows:

(1) Lower the cabinet assembly (5) to approximately 12 inches from ground level.

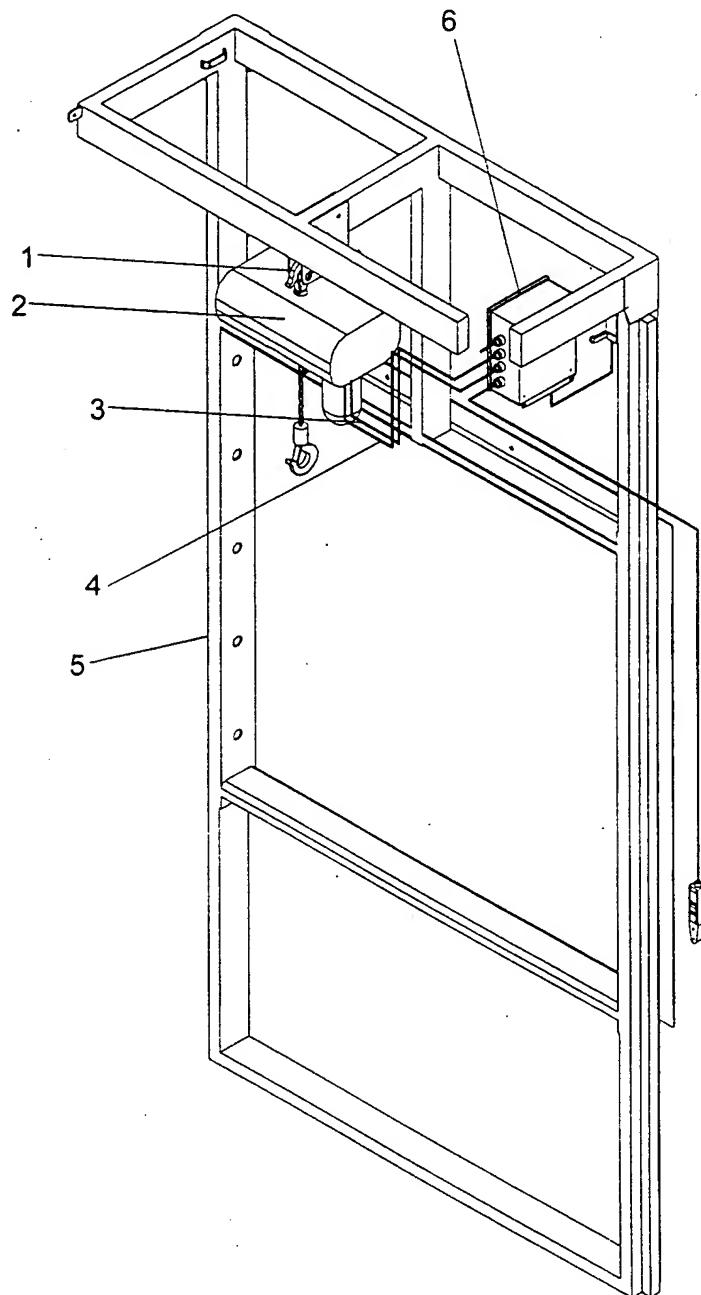
(2) Secure the cabinet assembly (5) with jacks to prevent it from dropping further.

WARNING: ALL POWER MUST BE SHUT OFF SO THERE IS NO ACCIDENTAL MOVEMENT OF THE BRIDGE WHEN THE WHEEL IS BEING REMOVED.

- (3) Remove the cap screw (1), the spacer (2), and the wheel axle (3) on all four corners of the cabinet assembly (5).
- (4) Proceed to remove the wheel (4) from the cabinet assembly (5).

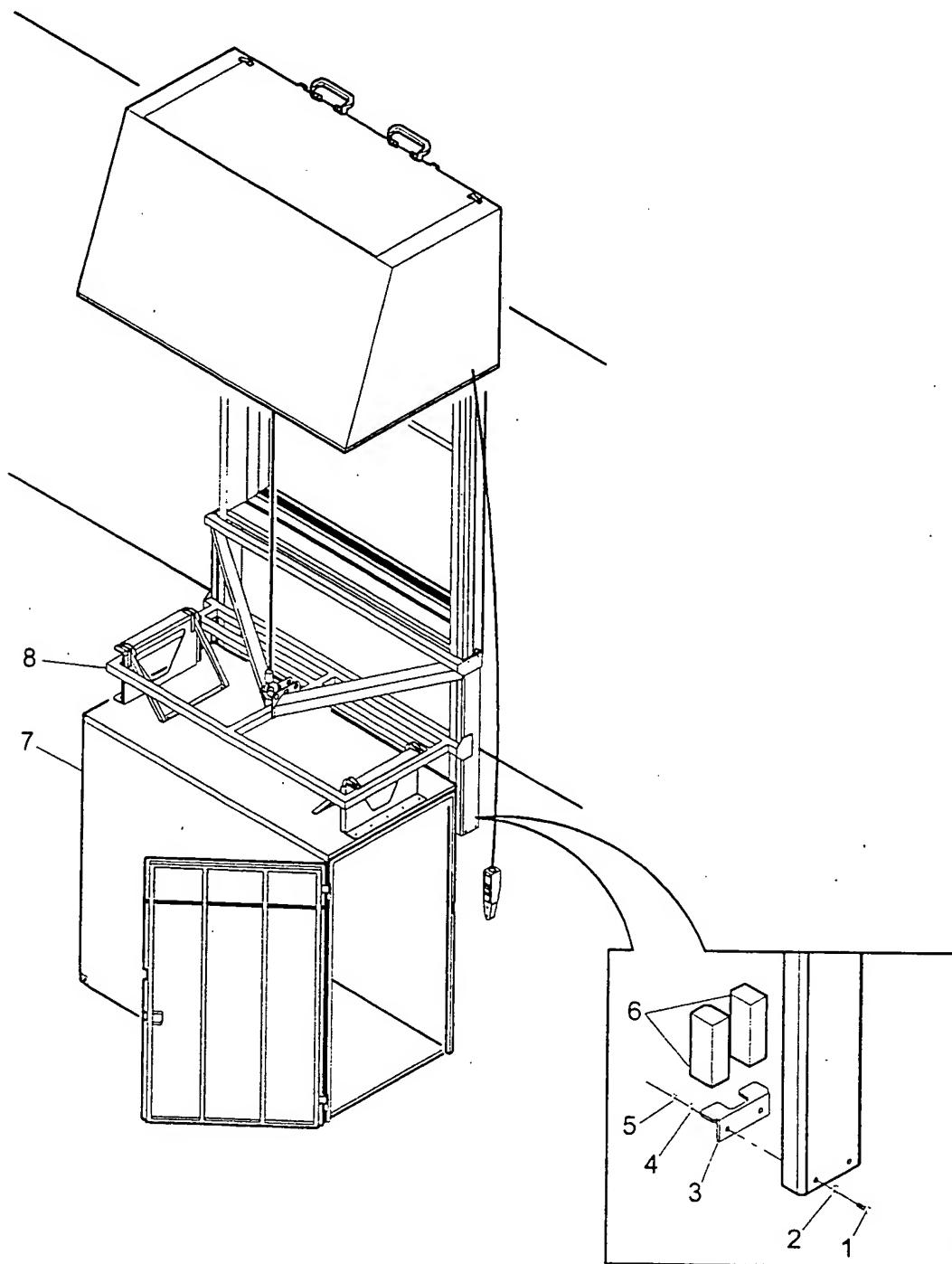
B. To install the wheels (4) to the cabinet assembly (5), proceed as follows:

- (1) Install the wheels in the reverse order of the removal.



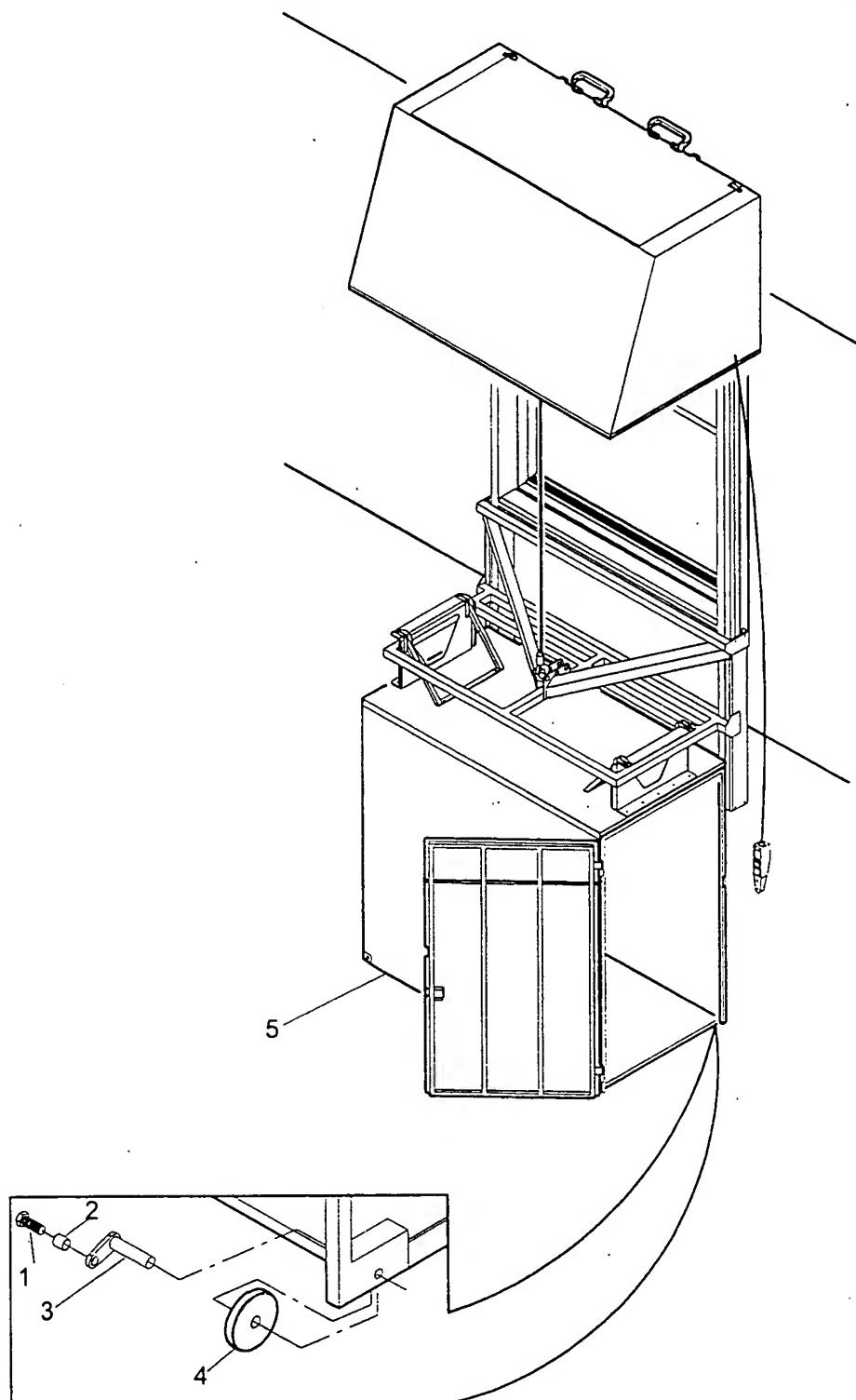
HOIST COMPONENTS
Figure 1

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SLIDER BLOCK COMPONENTS

Figure 2



WHEEL COMPONENTS
Figure 3

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CHAPTER 3

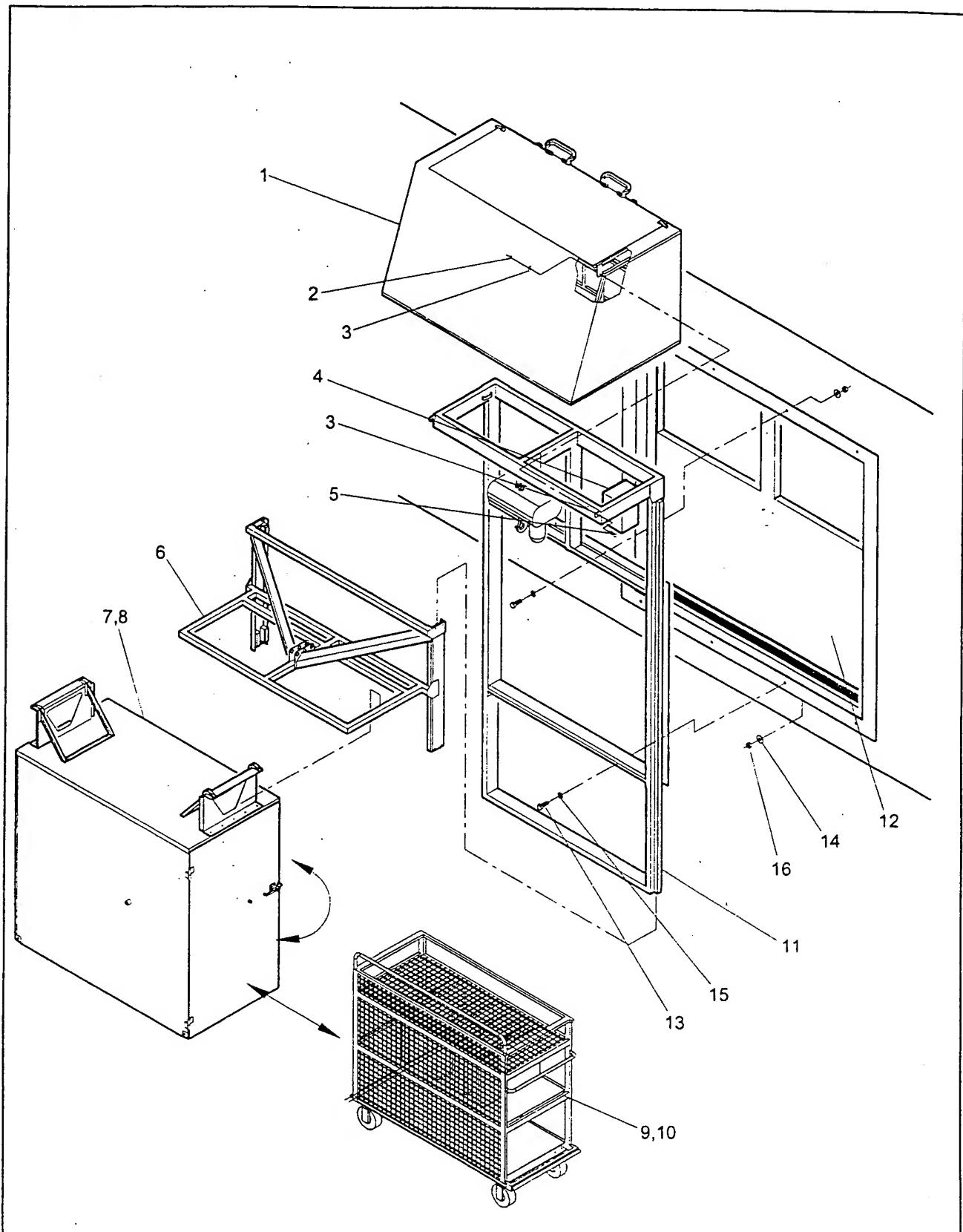
GENERAL

1. Purpose

- A. The Illustrated Parts List provides identification and part numbers for all parts that are supplied for the purpose of repairing or reconditioning the DEW-Valet Baggage System. Included in the information are illustrations to be used for identification purposes. Each part is given an item number on the illustration and in the associated parts list.
- B. When ordering parts, always specify part name, part number, and quantity required. Also include the component name, type or model and serial number.
- C. The break down of the Group Assembly Parts (GAPL) includes four columns showing Figure and Item Number, Part Number, Description and Quantity.

2. Locating A Component

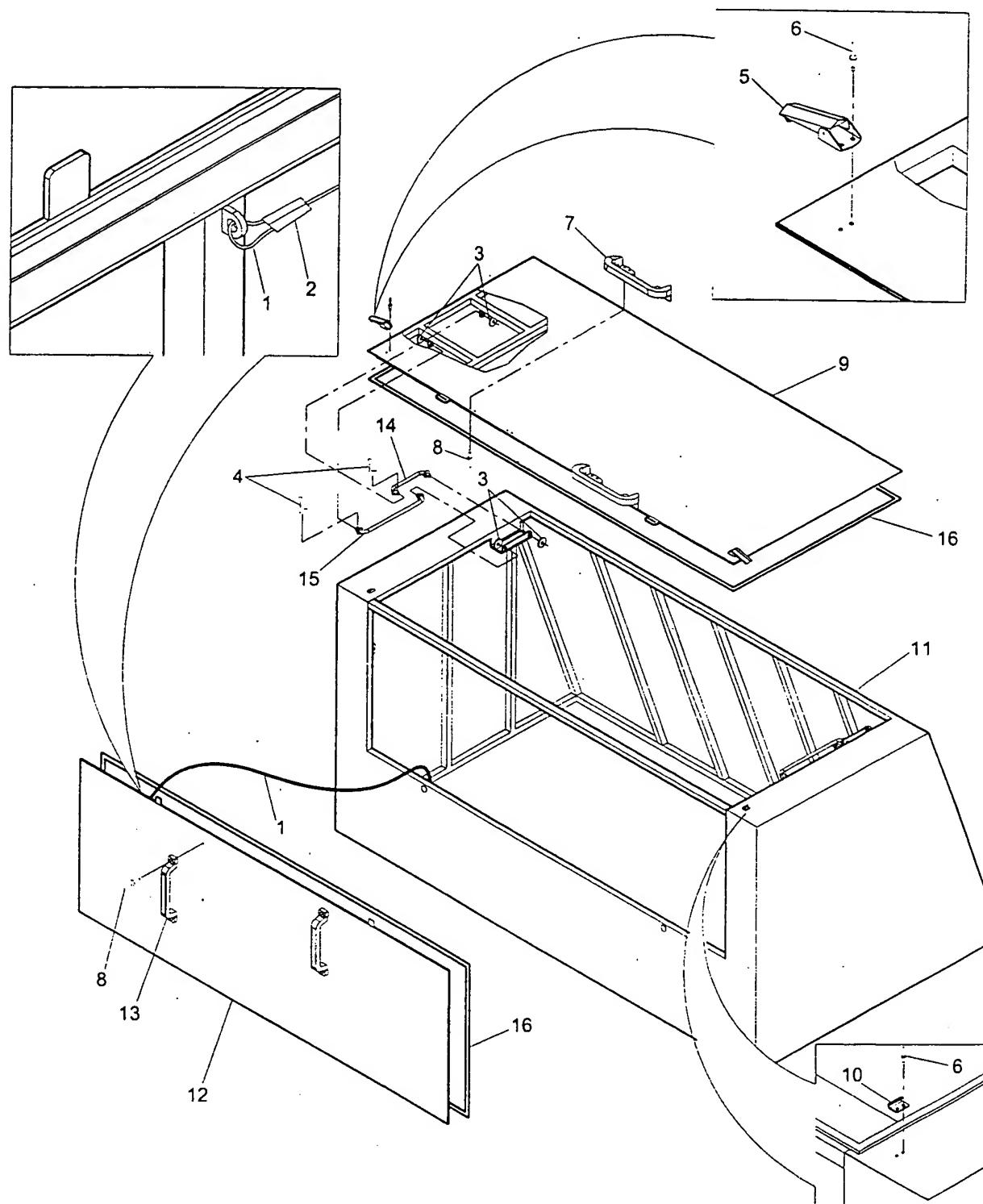
- A. To locate a part when the identity is known but the part number is not, proceed as follows:
 - (1) Refer to the illustration and note the item number.
 - (2) Refer to the accompanying text and locate the item number, then note the part number in the adjacent part number column.
- B. To locate a part if the part number is known but the identity is not, refer to the numerical parts list and proceed as follows:
 - (1) Find the part number and note the figure and item number.
 - (2) Locate the figure and item number in the GAPL and identify the part.



VALET BAGGAGE ASSEMBLY

Figure 1

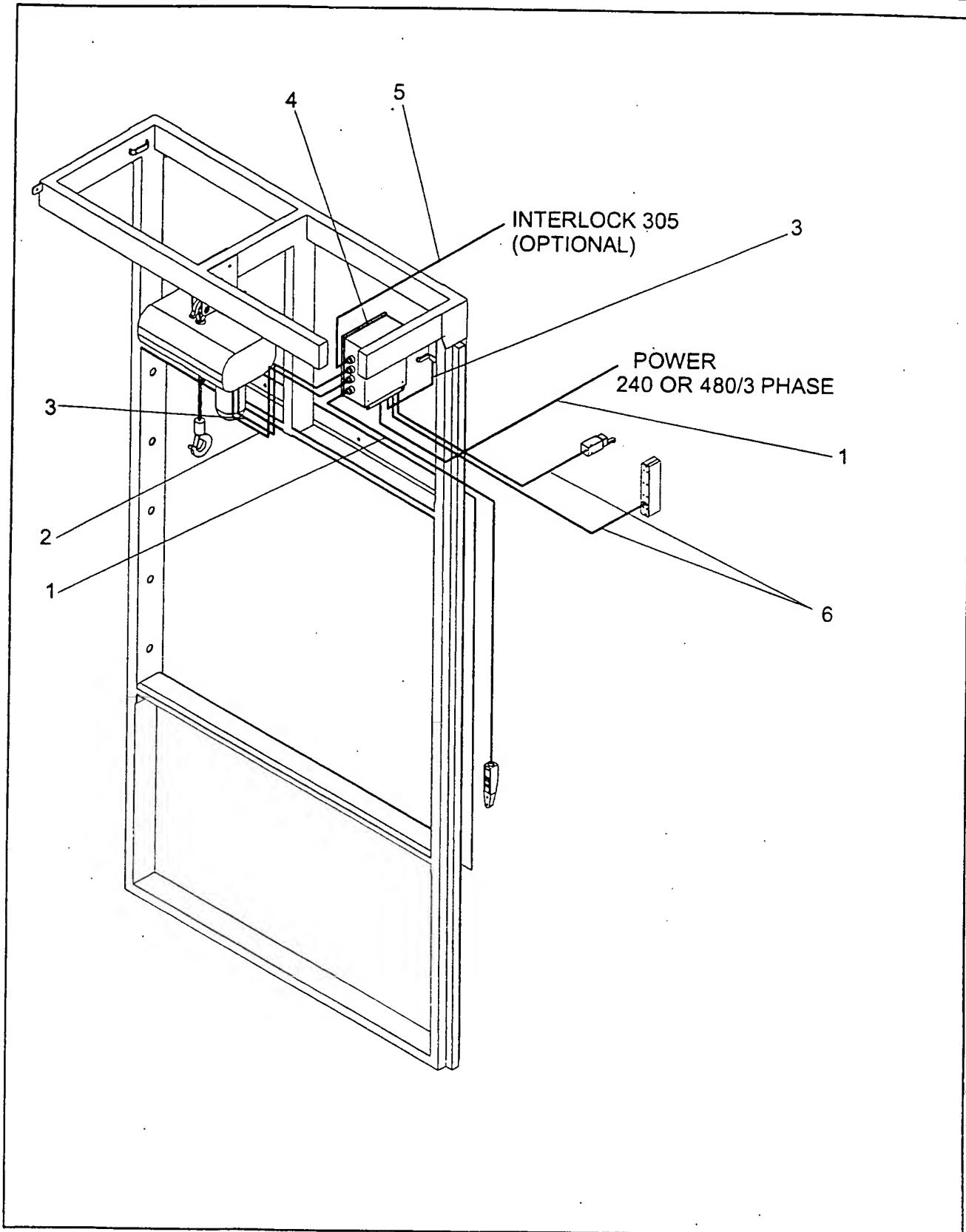
Figure Item No.	Part No.	Description	Qty
1	3849-000-1	VALET BAGGAGE ASSEMBLY	1
-1	3849-060-1	*Cover Assembly	REF
-2	HN-177	*Nut, Lock, Hex, 5/16-18UNC-2B, Steel, Zn Plated	6
-3	656-045	*Washer, Flat, 5/16 Dia Nom x 11/16 OD, Steel, Zn Plated	12
-4		*Electrical System	REF
-5	FT-6	*Screw, Cap, Hex Hd, 5/16-18UNC-2A x 1.25 Steel, Zn Plated	6
-6	3849-008-1	*Lifting Frame Assembly	REF
-7	3849-014-1	*Cabinet Assembly, RH	REF
-8	3849-014-2	*Cabinet Assembly, LH	REF
-9	3702-546-1	*Cart Assembly, RH	REF
-10	3702-546-2	*Cart Assembly, LH	REF
-11	3702-001-1	*Guide Rail Assembly	REF
-12		*Door Assembly	REF
-13	CS-2043	*Screw, Cap, Hex Hd, 1/2-13UNC-2A x 1.50 Lg	8
-14	20-SN	*Washer, Lock, 1/2	8
-15	656-048	*Washer, Flat, Steel, 1/2	8
-16	B-95	*Nut, Hex, 1/2-13UNC, Steel, Zn Plated	8



COVER ASSEMBLY

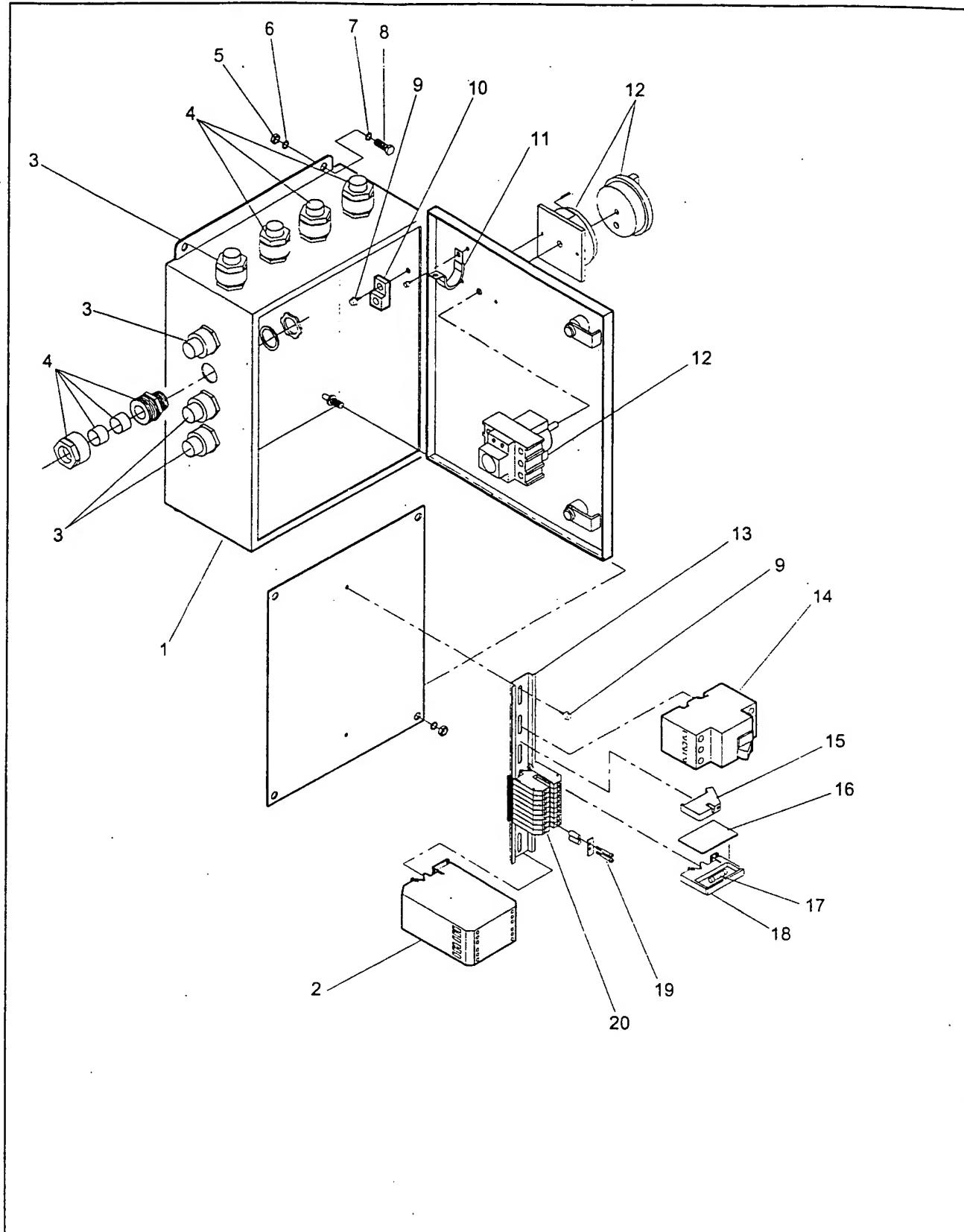
Figure 2

Figure Item No.	Part No.	Description	Qty
2		*Cover Assembly	1
	-1 697-105	**Wire Rope, Galv Steel, 1/8 Dia Nom, 30 Lg	1
	-2 121-362	**Sleeve, Swage, Aluminum, Oval, For 1/8 Dia Nom	2
		Cable	
	-3 656-013	**Washer, Flat, 1/2 Dia Nom. X 1-1/16 OD x 0.117 Thk, Steel, Zn Plated	8
	-4 CP-108	**Cotter Pin, 7/64 Dia Nom x 1.00 Lg, Steel	2
	-5 096-611	**Tension Latch, Secondary, Lock Type, Steel, Zn Plated	2
	-6 PR-6	**Rivet, Pop, Dome Hd, Open End, 3/16 Dia. Nom, 0.251-0.375 Grip, Steel	1
	-7 099-044	**Moulded Grab-Rail	2
	-8 310-044	**Rivet, Pop, Dome Hd, Open End, 1/4 Dia. Nom, 0.501-0.625 Grip, Steel	8
	-9 3849-057-1	**Installation assembly, Skin, Cover	1
	-10 096-613	**Strike	2
	-11 3849-059-1	**Installation Assembly, Skin, Cover	1
	-12 3859-058-1	**Installation Assembly, Skin, Side Hatch	1
	-13 4303	**Handle, Heavy Pull	1
	-14 3849-049-1	**Hinge, Short	1
	-15 3849-050-1	**Hinge, Long	1
	-16 892-374	**Weatherstripping, Self-Sealing, Rubber 0.50 x 0.188 Thk	AR



ELECTRICAL SYSTEM
Figure 3

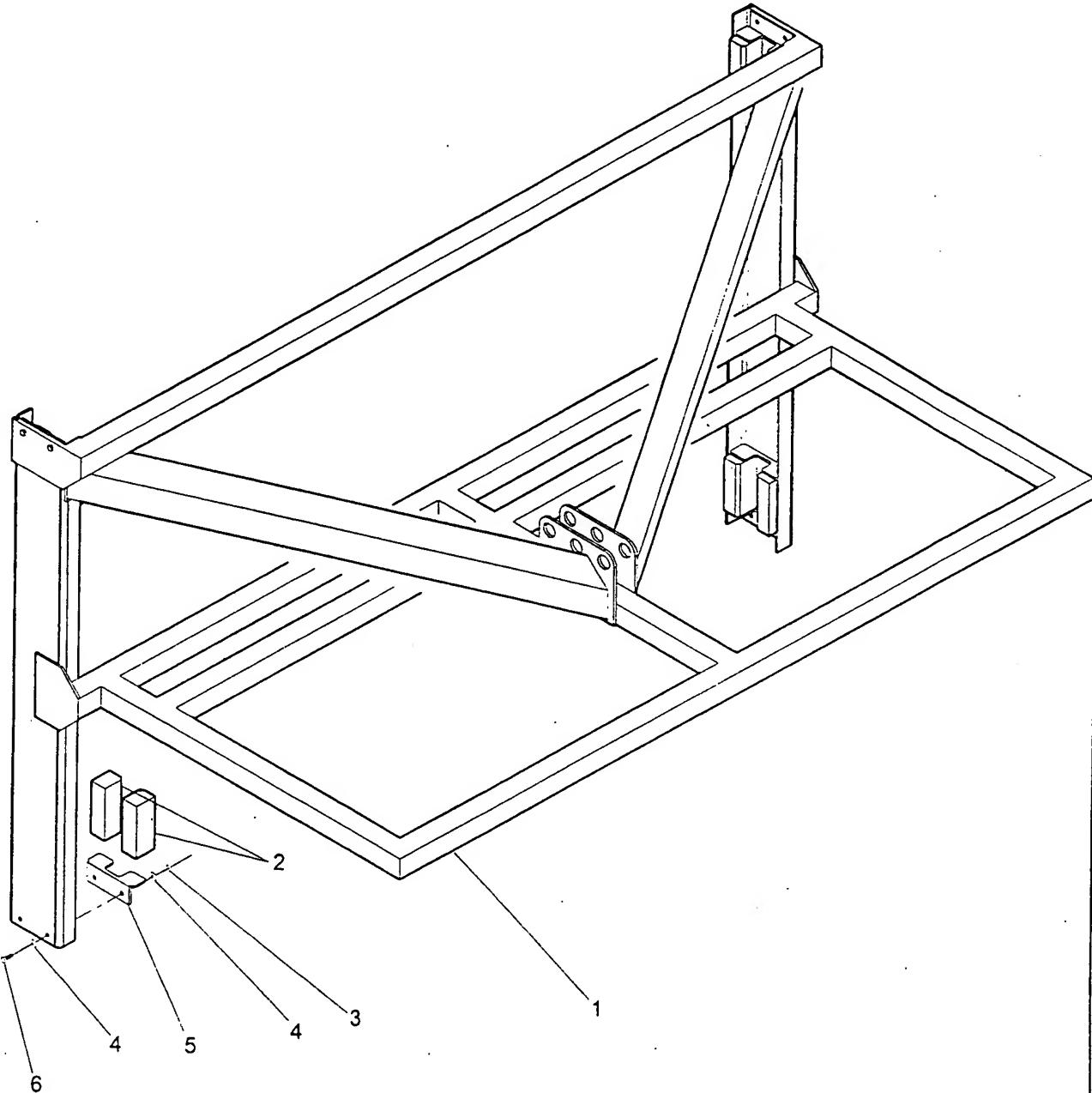
Figure Item No.	Part No.	Description	Qty	
3		*Electrical System	1	
	-1	Commercial	**Conductor, 14 AWG, 4/C, SOW	2
	-2	Commercial	**Conductor, 16 AWG, 4/C, SOW	1
	-3	Commercial	**Conductor, 16 AWG, 6/C, SOW	1
	-4	Commercial	**Electrical Box Assembly	REF
	-5	Commercial	**Conductor, 16 AWG, 2/C, SOW	1
	-6	Commercial	**Conductor, 16 AWG, 3/C, SOW	2



ELECTRICAL BOX ASSEMBLY

Figure 4

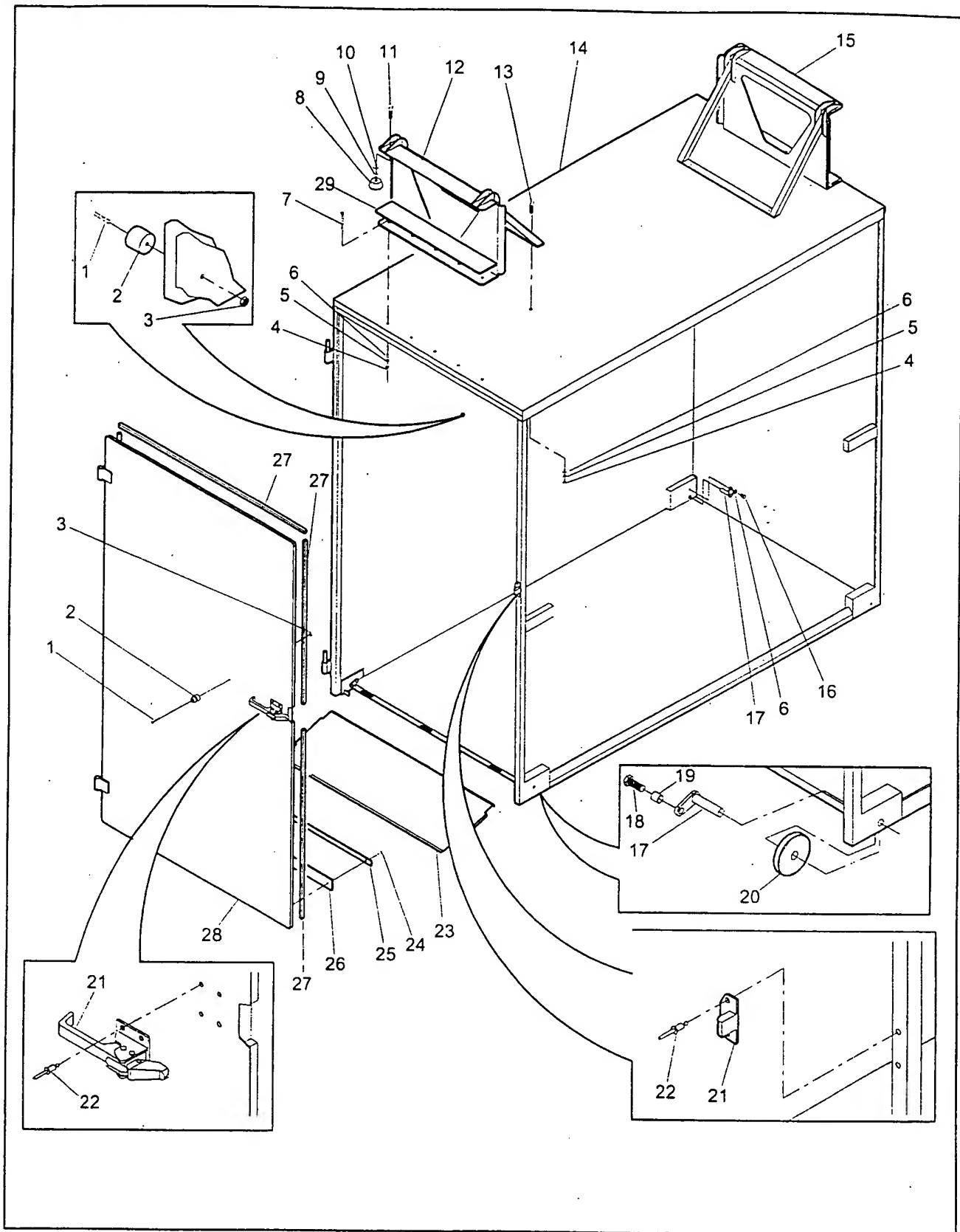
Figure Item No.	Part No.	Description	Qty
4		**Electrical Box Assembly	1
	-1 S121005	***Box, Electrical	1
	-2 EG4-SNT	***Power, Supply, 115, 230, VAC/24 DC, 1A	2
	-3 SR-50-625	***Griptight, Straight, Type-SR	3
	-4 SR-50-500	***Griptight, Straight, Type-SR	
	-5	***	
	-6	***	
	-7	***	
	-8	***	
	-9 508-015	***Screw, Teks, Hex, #10 x 3/4	4
	-10 KA2V KA2U	***Lug, Ground	1
	-11 COMM	***Clamp, Cable	1
	-12 PI-25/EA/SVB	***Disconnect Switch	1
	-13 TS35X7.5	***Rail, Mounting, Slotted, DIN, 11.0 Lg	1
	-14 6V2-M07	***Starter, Manual	1
	-15 EW35	***End, Bracket, Weidmuller	1
	-16 WE-38036	***Plate, End	1
	-17 GMA250MA	***Fuse, 250Ma	1
	-18 ASK4	***Fuse Holder, Weidmuller	1
	-19 Q-10-SAK4	***Cross Connection, 2 Position, Weidmuller	1
	-20 SAK-4-EN	***Terminal, 600V, 36A, Weidmuller	9



LIFTING FRAME ASSEMBLY

Figure 5

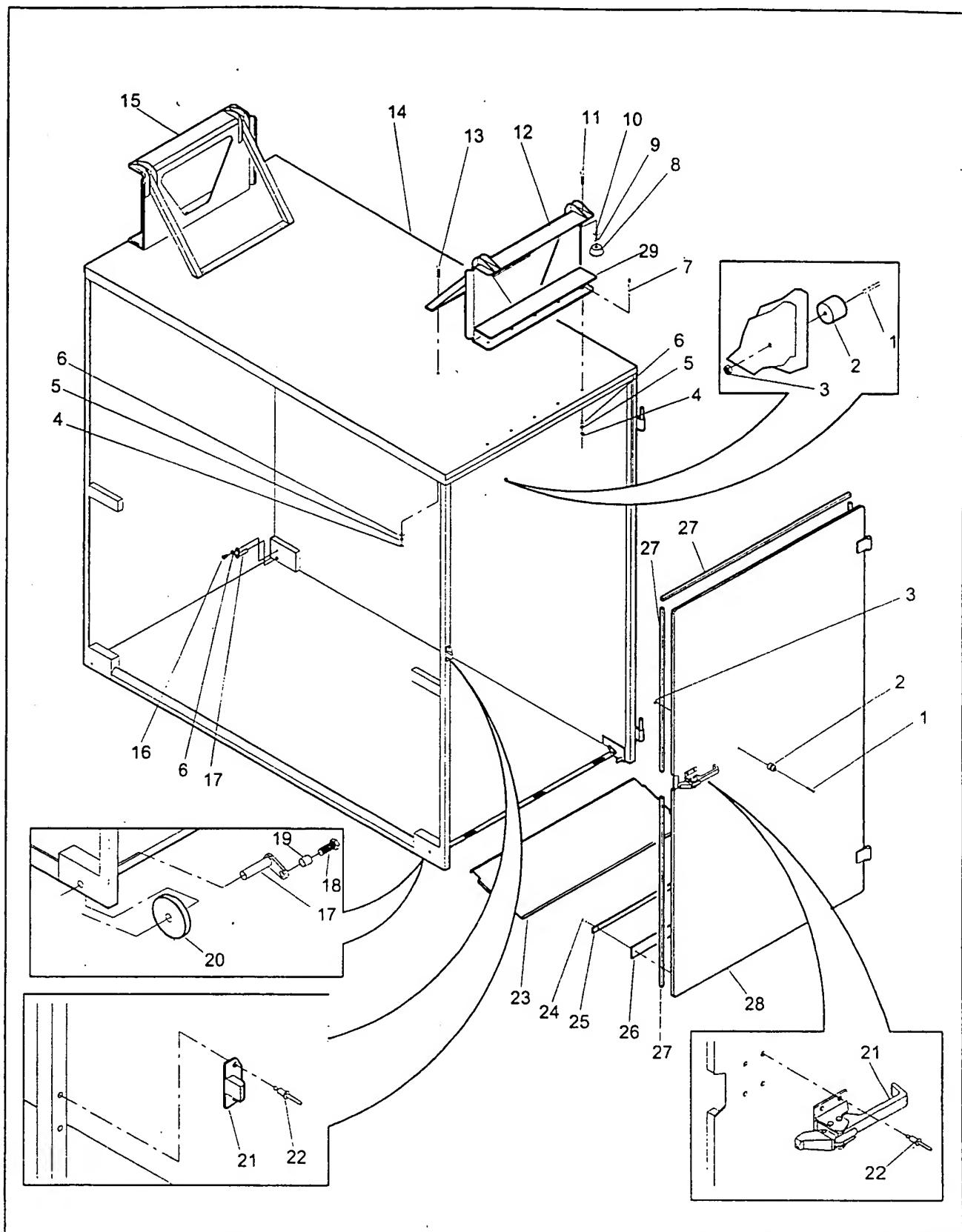
Figure Item No.	Part No.	Description	Qty
5		*Lifting Frame Assembly	1
	-1 3849-008-1	**Welded Assembly, Lifting Frame	1
	-2 3849-034-1	**Block, Slider.	1
	-3 HN-177	**Nut, Lock, Hex, 5/16-18UNC-2B, Steel, Zn Plated	8
	-4 656-045	**Washer, Flat, 5/16 Dia Nom x 11/16 OD, Steel, Zn Plated	16
	-5 3849-032-1	**Bracket, Retaining	4
	-6 FT-5	**Screw, Cap, Hex Hd, 5/16-18UNC-2A x 1.00 Lg, Steel, Zn Plated	8



CABINET FRAME ASSEMBLY, RH

Figure 6

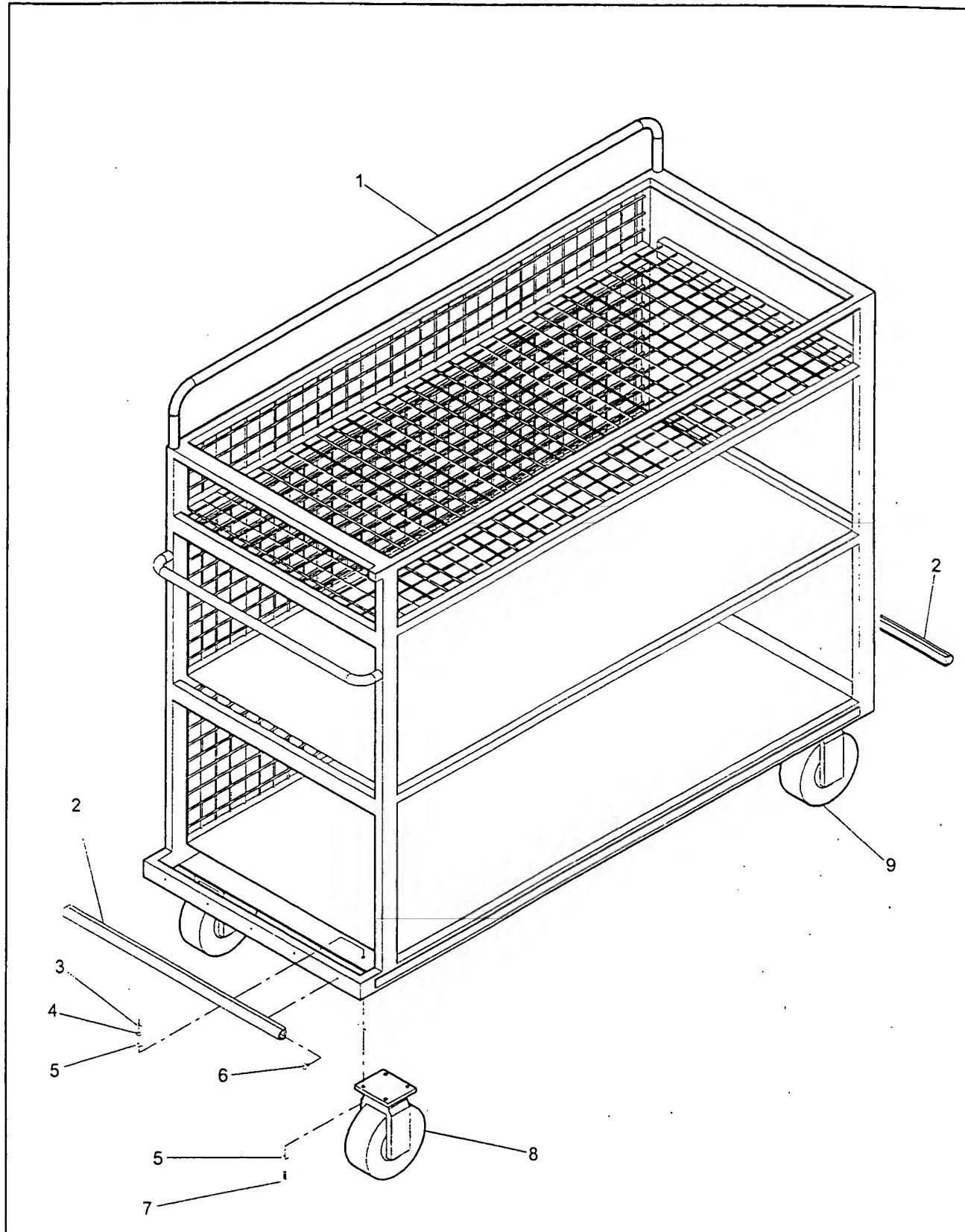
Figure Item No.	Part No.	Description	Qty
6			
-1	326-334	*Cabinet Frame Assembly, RH **Screw, Cap, Hex, Hd, 1/4-20UNC-2A x 1.50 Lg, Steel, Zn Plated	1 2
-2	1-776-2	**Door Holder, Rubber, Black	1
-3	HN-175	**Nut, Lock, Hex, 1/4-20UNC-2B, Steel, Zn Plated	2
-4	B-93	**Nut, Hex, 3/8-16UNC-2B, Steel, Zn Plated	14
-5	18-SN	**Washer, Lock, 3/8 Dia Nom, Steel, Zn Plated	14
-6	92-SN	**Washer, Flat, 3/8 Dia Nom x 1.00 Od, Steel, Zn Plated	14
-7	363-516	**Screw, Cap, Hex Socket, Flat Hd, 3/8-16UNC-2B x 2.00 Lg, Stl	10
-8	60855K45	**Vibration Control Leveling Glide	4
-9	B-95	**Nut, Hex, 1/2-13UNC-2B, Steel, Zn Plated	4
-10	W-177	**Washer, Flat, 1/2 Dia Nom x 1-5/64 Od, Steel, Zn Plated	16
-11	FT-15	**Screw, Cap, Hex, 1/2-13UNC-2A x 2.00 Lg, Steel, Zn Plated	4
-12	3849-031-2	**Bracket, Lifting Assembly, LH	1
-13	HC-46	**Screw, Cap, Hex Hd, 3/8-16UNC-2A x 1.75 LG, Steel, Zn Plated	4
-14	3849-023-1	**Installation Assembly, Skin, Cabinet, RH	1
-15	3849-031-1	**Bracket, lifting, Assembly, RH	1
-16	HC-39	**Screw, Cap, Hex Hd, 3/8-16UNC-2A x 0.50 Lg, Steel, Zn Plated	2
-17	3849-067-1	**Wheel Axle	4
-18	HC-43	**Screw, Cap, Hex Hd, 3/8-16UNC-2A x 1.00 Lg, Steel, Zn Plated	2
-19	3849-014-3	**Spacer	2
-20	2472T27	**Solid Polyurethane Wheel, 5 Dia x 1.25 x 0.50 Axle	4
-21	A2-10-501-21	**Latch, Lever, With Black Vinyl Grip	1
-22	310-042	**Rivet, Pop, 1/4 Dia Nom, Steel, Dome Hd, Open End, 0.251-0.375 Grip	6
-23	3849-068-1	**Ramp	1
-24	PR-7	**Rivet, Pop, 3/16 Dia Nom, Steel, Dome Hd, Open End, 0.376-0.500 Grip	4
-25	3849-020-1	**Retaining Strap	1
-26	COMMERCIAL	**Seal, Rubber, Black, 1.16 Wide x 0.125 Thk	1
-27	892-374	**Weatherstripping, Self-sealing, Rubber, 0.50 x 0.188 Thk	AR
-28	3849-018-1	**Door Assembly, Cabinet, RH	1
-29	COMMERCIAL	**Sheet, Rubber, 0.50 Thk x 22.5 Lg x 2.0 Wide, 70 Durometer	AR



CABINET FRAME ASSEMBLY, LH

Figure 7

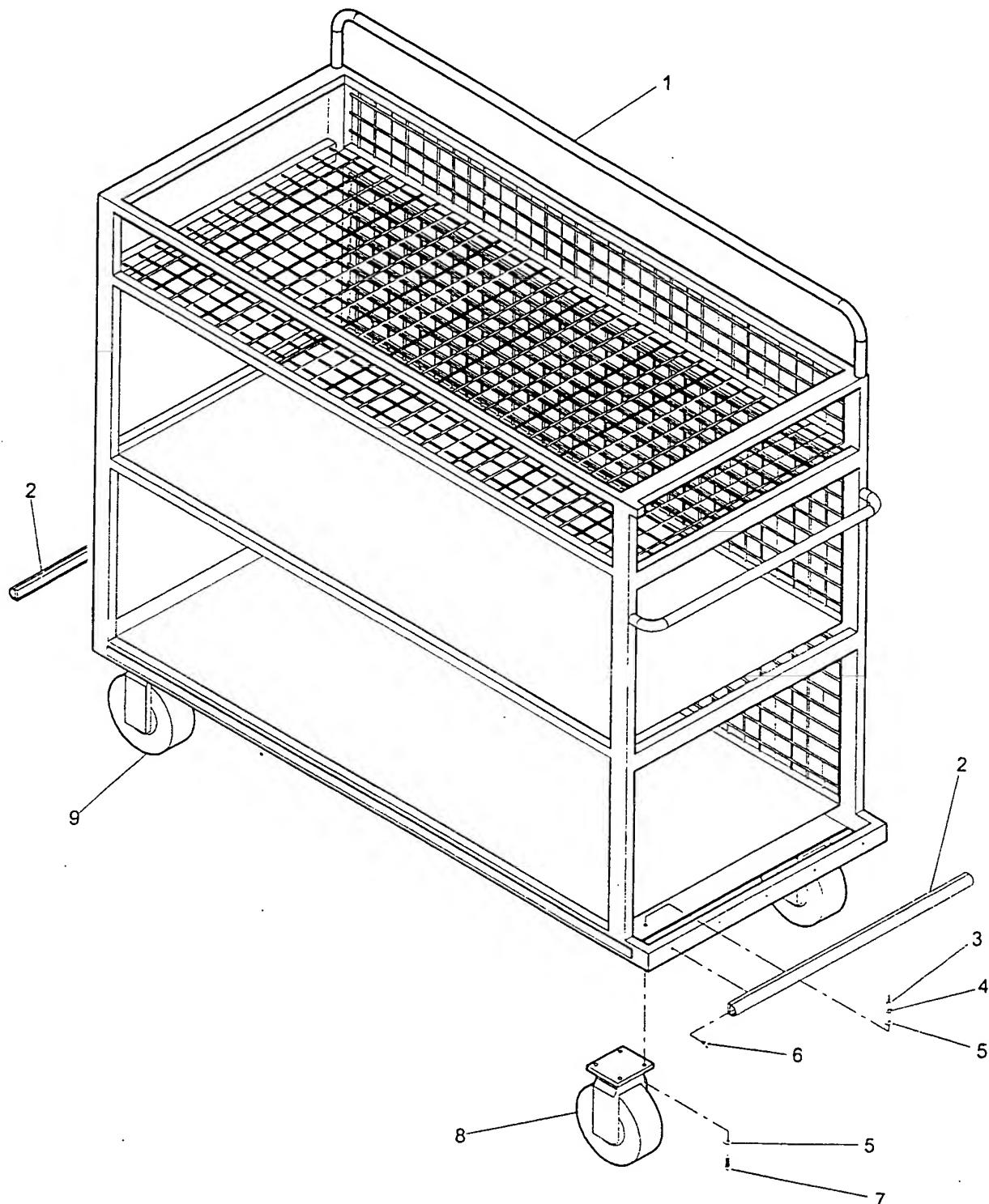
Figure Item No.	Part No.	Description	Qty
7	-1 326-334	*Cabinet Frame Assembly, LH **Screw, Cap, Hex, Hd, 1/4-20UNC-2A x 1.50 Lg, Steel, Zn Pld	1 2
	-2 1-776-2	**Door Holder, Rubber, Black	1
	-3 HN-175	**Nut, Lock, Hex, 1/4-20UNC-2B, Steel, Zn Pld	2
	-4 B-93	**Nut, Hex, 3/8-16UNC-2B, Steel, Zn Pld	14
	-5 18-SN	**Washer, Lock, 3/8 Dia Nom, Steel, Zn Pld	14
	-6 92-SN	**Washer, Flat, 3/8 Dia Nom x 1.00 Od, Steel, Zn Pld	14
	-7 363-516	**Screw, Cap, Hex Socket, Flat Hd, 3/8-16UNC-2B x 2.00 Lg, Stl	10
	-8 60855K45	**Vibration Control Leveling Glide	4
	-9 B-95	**Nut, Hex, 1/2-13UNC-2B, Steel, Zn Pld	4
	-10 W-177	**Washer, Flat, 1/2 Dia Nom x 1-5/64 Od, Steel, Zn Pld	16
	-11 FT-15	**Screw, Cap, Hex, 1/2-13UNC-2A x 2.00 Lg, Steel, Zn Pld	4
	-12 3849-031-2	**Bracket, Lifting Assembly, LH	1
	-13 HC-46	**Screw, Cap, Hex Hd, 3/8-16UNC-2A x 1.75 LG, Steel, Zn Pld	4
	-14 3849-023-2	**Installation Assembly, Skin, Cabinet, LH	1
	-15 3849-031-1	**Bracket, lifting, Assembly, RH	1
	-16 HC-39	**Screw, Cap, Hex Hd, 3/8-16UNC-2A x 0.50 Lg, Steel, Zn Pld	2
	-17 3849-067-1	**Wheel Axle	4
	-18 HC-43	**Screw, Cap, Hex Hd, 3/8-16UNC-2A x 1.00 Lg, Steel, Zn Pld	2
	-19 3849-014-3	**Spacer	2
	-20 2472T27	**Solid Polyurethane Wheel, 5 Dia x 1.25 x 0.50 Axle	4
	-21 A2-10-501-21	**Latch, Lever, With Black Vinyl Grip	1
	-22 310-042	**Rivet, Pop, 1/4 Dia Nom, Steel, Dome Hd, Open End, 0.251-0.375 Grip	6
	-23 3849-068-1	**Ramp	1
	-24 PR-7	**Rivet, Pop, 3/16 Dia Nom, Steel, Dome Hd, Open End, 0.376-0.500 Grip	4
	-25 3849-020-1	**Retaining Strap	1
	-26 COMMERCIAL	**Seal, Rubber, Black, 1.16 Wide x 0.125 Thk	1
	-27 892-374	**Weatherstripping, Self-sealing, Rubber, 0.50 x 0.188 Thk	AR
	-28 3849-018-2	**Door Assembly, Cabinet, LH	1
	-29 COMMERCIAL	**Sheet, Rubber, 0.50 Thk x 22.5 Lg x 2.0 Wide, 70 Durometer	AR



CART ASSEMBLY, RH

Figure 8

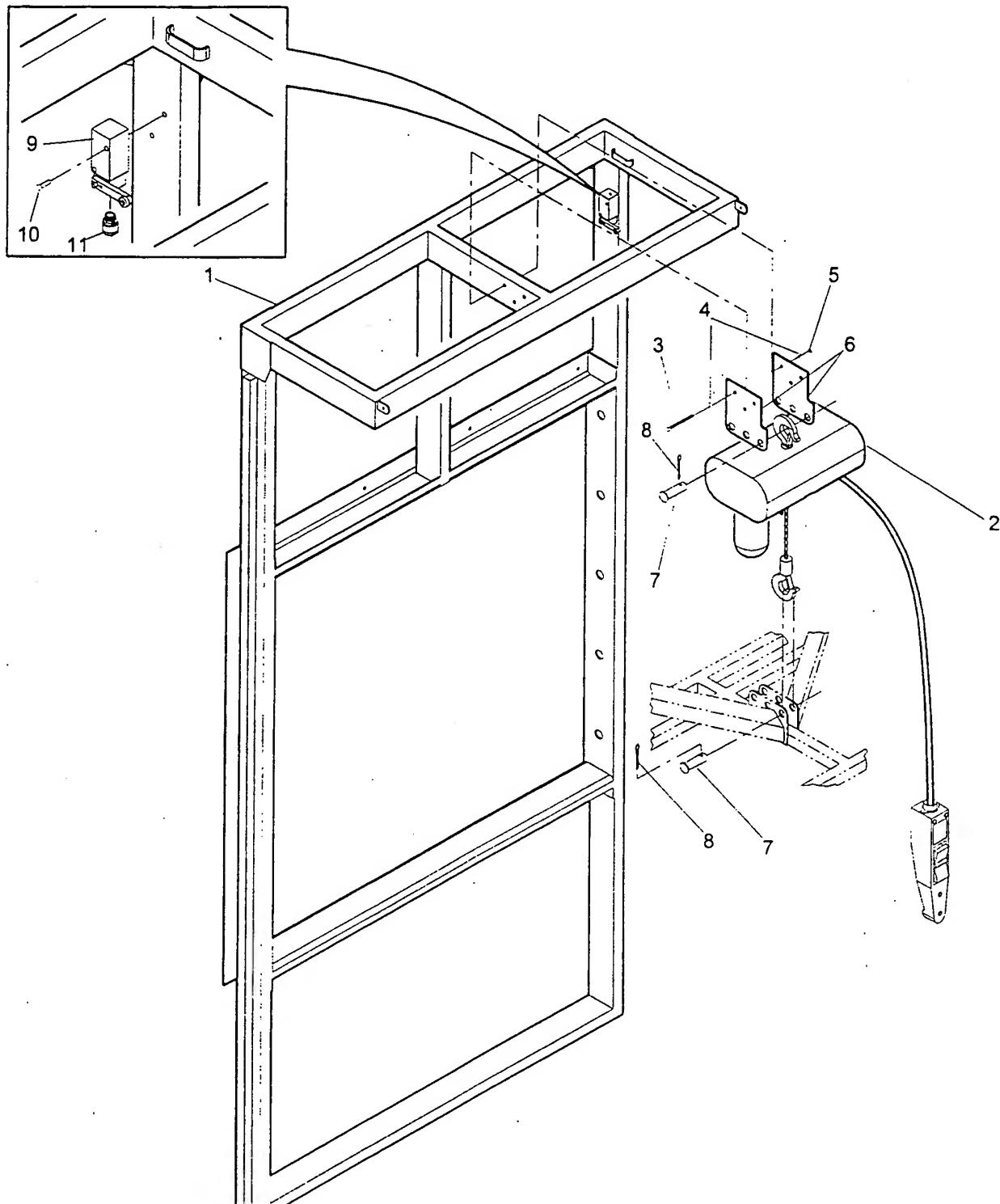
Figure Item No.	Part No.	Description	Qty
8		*Cart Assembly, RH	1
	-1 3702-545	**Frame Weldment, Cart	1
	-2 RW-50P	**Bumper, Gunwale	2
	-3 B-93	**Nut, Hex, 3/8-16UNC-2B, Steel, Zn Plated	16
	-4 18-SN	**Washer, Lock, 3/8 Dia Nom, Steel, Zn Plated	16
	-5 92-SN-ZP	**Washer, Flat, 3/8 Nom x 1.00 OD, Zn Plated	16
	-6 508-102	**Tek Screw, 8-18 X 5/8 Long	10
	-7	**Cap Screw, Hex, 3/8-16UNC-2A x 1-1/4 Lg, Steel	16
	-8 22925T74	**Caster, Pneumatic, Swivel	2
	-9 22925T81	**Caster, Pneumatic	2



CART ASSEMBLY, LH

Figure 9

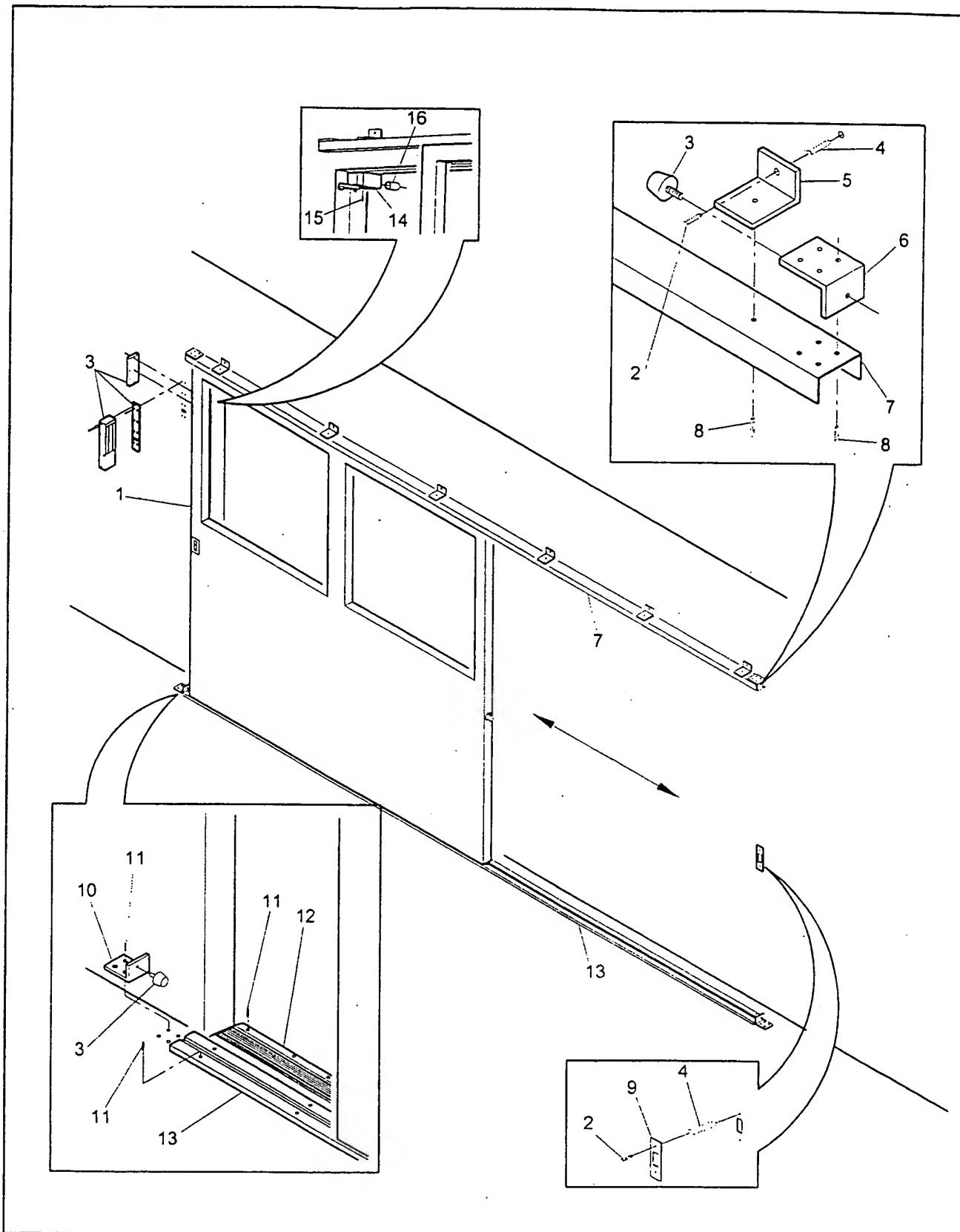
Figure Item No.	Part No.	Description	Qty
9		*Cart Assembly, LH	1
	-1 3702-545	**Frame Weldment, Cart	1
	-2 RW-50P	**Bumper, Gunwale	2
	-3 B-93	**Nut, Hex, 3/8-16UNC-2B, Steel, Zn Pld	16
	-4 18-SN	**Washer, Lock, 3/8 Dia Nom, Steel, Zn Pld	16
	-5 92-SN-ZP	**Washer, Flat, 3/8 Nom x 1.00 OD, Zn Pld	16
	-6 508-102	**Tek Screw, 8-18 X 5/8 Long	10
	-7 HC-44	**Cap Screw, Hex, 3/8-16UNC-2A x 1-1/4 Lg, Steel	16
	-8 22925T74	**Caster, Pneumatic, Swivel	2
	-9 22925T81	**Caster, Pneumatic	2



GUIDE RAIL ASSEMBLY

Figure 10

Figure Item No.	Part No.	Description	Qty
10		*Guide Rail Assembly	1
-1	3849-001-1	**Welded Assembly, Guide Rail	1
-2	9236B-EX	**Hoist, Electric chain, 1 Ton, 15 Ft Lift, Temp Rated -40 to +52°C	1
-3	HC-82	**Screw, Cap, Hex Hd, 1/2-13UNC-2A x 3.50, Steel, Zn Pld	3
-4	656-048	**Washer, Flat, 1/2 Dia Nom x 1-1/16 OD, Steel, Zn Pld	6
-5	HN-183	**Nut, Lock, Hex, 1/2-13UNC-2B, Steel, Zn Pld	3
-6	3849-007-1	**Lug, Sling	2
-7	98306A851	**Pin, Clevis, 1-1/4 Dia Nom x 4.00 Lg, 3-3/8 Lg grip, Steel	2
-8	98355A851	**Pin, Cotter, 1/4 Dia x 2.00 Lg, Type 316, Steel, Stainless	2
-9	LSYAB1A	**Limit Switch	1
-10	MS-1206P	**Screw, Machine, Pan Head, Phillips Drive, #10-32 x 2.00 Lg	2
-11	SR-50-500	**Griptight, Straight, Type-SR	1



VALET BAGGAGE DOOR ASSEMBLY

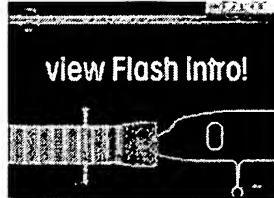
Figure 11

Figure Item No.	Part No.	Description	Qty
11		*Valet Baggage Door Assembly	1
	-1 Series 1100	**Door, Aluminum, 70.0 High x 70.1 Wide	1
	-2 424-075	**Machine Screw, Phillips Drive, Pan, #10-24 x 2.00	8
		Lg	
	-3 820002	**Magnetic Locking Device, ML Series	1
	-4 102-003	**Anchor, Zip-It	7
	-5 3849-074-1	**Bracket Support, Upper Door, Channel	6
	-6 3849-045-1	**Bracket, Stop, Upper Door	2
	-7 Series 1100	**Door Guide, Upper Channel	1
	-8 MS-2380P	**Machine Screw, Phillips Drive, Pan, #10-24 x 0.50	14
		Lg	
	-9 3849-075-1	**Latch Plate, Door Open	1
	-10 3849-046-1	**Bracket, Stop, Lower Door	2
	-11 508-402	**Sq. Socket, Waffer Head, Teks, #12-24 x 2.50 Lg	44
	-12 Series 1100	**Threshold	
	-13 Series 1100	**Door Guide, Lower Rail	1
	-14 LSYAB1A	**Limit Switch	1
	-15 MS-1206P	**Screw, Machine, Pan Head, Phillips Drive, #10-32 x 2.00 Lg	2
	-16 SR-50-500	**Griptight, Straight, Type-SR	1



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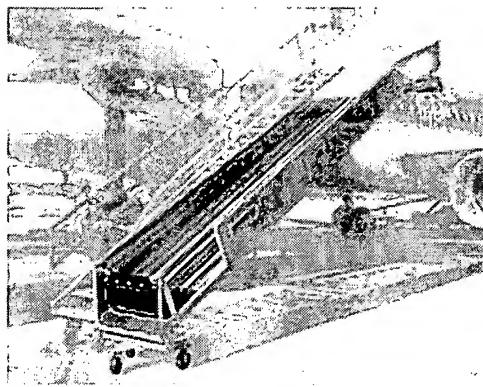
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- Last-minute arrivals with baggage
- Passengers with motorized wheelchairs
- Baby strollers at the gate

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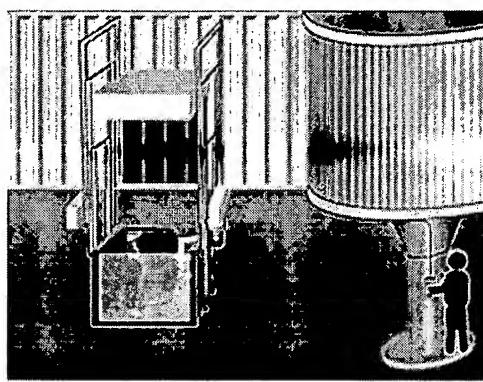
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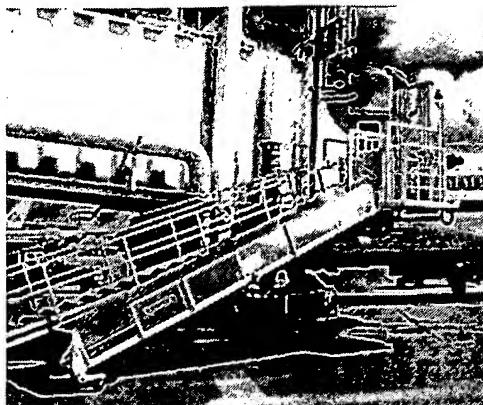
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The Nova BridgeLift attaches to the bridge just a few steps from the gate--and raises and lowers up to 400 lbs. 15 feet vertically in less than 20 seconds!

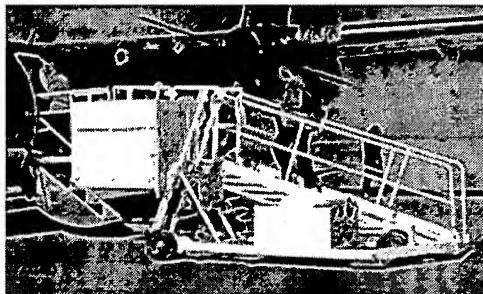
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NEW!

The Nova Slide with LIFT option raises and lowers up

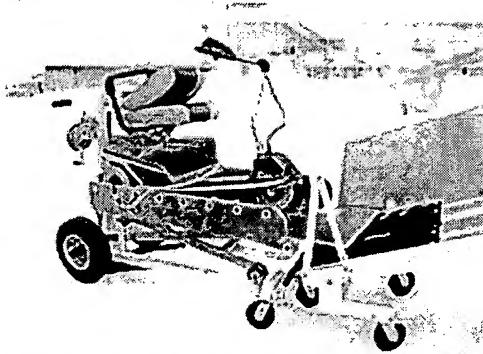


**to 400 lbs. 15 feet vertically
in less than 20 seconds!**



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